

# TOSHIBA

## COLOUR VIDEO CASSETTE RECORDER

# V-33



This model is basically same as model V-31. For further information please refer to service data (File No. 030-066) for model V-31.

### SPECIFICATIONS

<b>General</b> Video recording system: Head configuration 2-head rotary Video signal: CCIR standard, PAL colour Storage temperature: $-20^{\circ}$ to $+60^{\circ}\text{C}$ ( $-4^{\circ}$ to $+140^{\circ}\text{F}$ ) Operating temperature: $5^{\circ}$ to $40^{\circ}\text{C}$ ( $41^{\circ}$ to $104^{\circ}\text{F}$ ) Antenna: 75-ohms external aerial terminal for VHF and UHF Channel coverage: VHF channels 2 – 12 UHF channels 21 – 69 UHF output signal: UHF channels E31 to E39 (Variable) Power requirements: 220V AC50 Hz Power consumption: 33W Weight: 9.7 kg Dimensions: $420\times122\times390\text{mm}$ (W/H/D) ( $16.8\times4.88\times15.6$ inches) (W/H/D)		<b>Audio</b> Input: AUDIO LINE IN: Phono-type, 50 k-ohms, $-10$ dB Output: AUDIO LINE OUT: Phono-type, less than 10 k ohms, $-5$ dB, unbalanced Frequency response: 50 to 8,000 Hz Signal to noise ratio: Better than 40 dB	
		<b>Tape transport</b> Tape speed: 18.73 mm/sec. Maximum recording time: 3 hours 15 min. (with L-750) Fast forward time: Within 4.5 min. (L-500) Rewind time: Within 4.5 min. (L-500)	
<b>Video</b> Input: VIDEO LINE IN: Phono-type connector 1.0V (pp), 75 ohms unbalanced, sync. negative Output: VIDEO LINE OUT: Phono-type connector 1.0V (pp), 75-ohms, unbalanced, sync. negative Signal-to-noise ratio: Better than 42 dB		<b>Timer</b> LED digital display Count down from AC-line frequency.	
Design and specifications are subject to change without notice.			
Caution: Copyright Act 1956 Users of video recording equipment should note that it may be unlawful to record television broadcasts, cinematograph films or video recording without the permission of the relevant copyright owner.			

The V-33 is different from the V-31 in the following points.

1. A wireless remote controller is added to the V-33.
2. The timer of the V-33 is the 8-program 14-day type.
3. The tuner circuit, timer circuit, logic circuit, and wireless remote controller circuit are different from those of the V-31.

4. The video circuit, audio circuit, servo circuit, and power circuit are basically the same as those of the V-31.
5. Operation of the mechanism is the same as that of the V-31.
6. The method of electrical and mechanical adjustment is the same as that of the V-31.

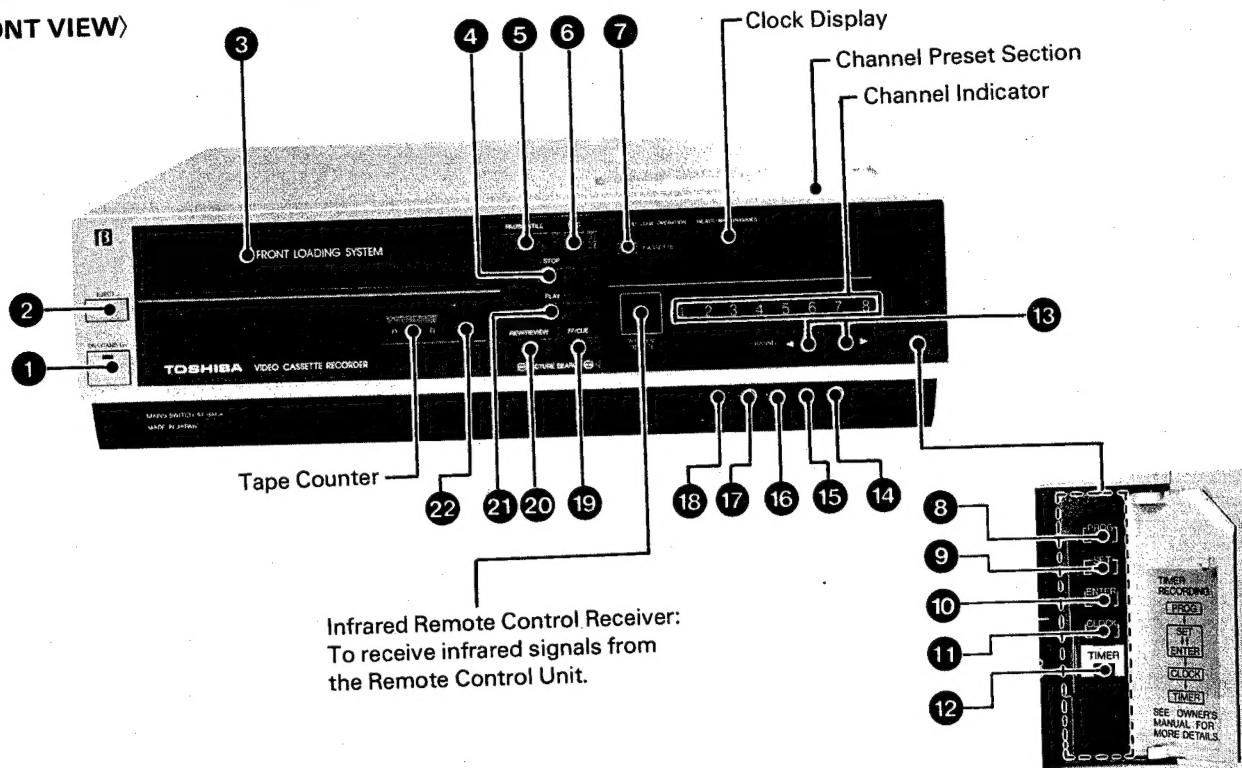
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# SECTION 1. GENERAL

## IDENTIFICATION AND OPERATION OF CONTROLS

(FRONT VIEW)



### 1 ON/STAND BY switch

Turns VTR power on, and off for standby mode. With this switch in the ON mode, the VTR is ready for use and the lamp lights.

The standby mode is used to switch off all functions of the VTR, except for the clock and the interface circuit between the VTR and your television receiver.

### 2 EJECT button

Used to remove the cassette from the cassette compartment.

### 3 Cassette compartment

When the cassette is inserted in this compartment, the cassette will automatically be loaded ready for operation. The CASSETTE indicator lamp lights.

### 4 STOP button

Used to stop the tape under all conditions.

### 5 PAUSE/STILL button

Used to stop a tape temporarily in the recording mode or used to watch a still picture in the playback mode. (This button is released automatically after 7 minutes. And the VTR returns to recording from pause or returns to playback from still.)

### 6 REC button

Push this button to record. If the safety tab has been removed from the cassette, it will not be possible to record, thereby preventing your recordings being accidentally erased.

### 7 CASSETTE indicator lamp

When the cassette is correctly set in the VTR ready for operation, this CASSETTE indicator lamp will light. In the timer mode, this CASSETTE indicator lamp turns OFF, if a cassette is set in the VTR.

### 8 PROG button

Used to set the programme.

### 9 SET button

Used to set the clock and timer display section of the readout which is flashing.

### 10 ENTER button

Fixes and stores the information fed by the SET button.

### 11 CLOCK button

Used to set to the current time.

### 12 TIMER button

Push for timed recording after programming VTR for unattended recording.

### 13 CHANNEL select button

Used to select the channels you wish to view or record.

### 14 VIDEO OUT jack

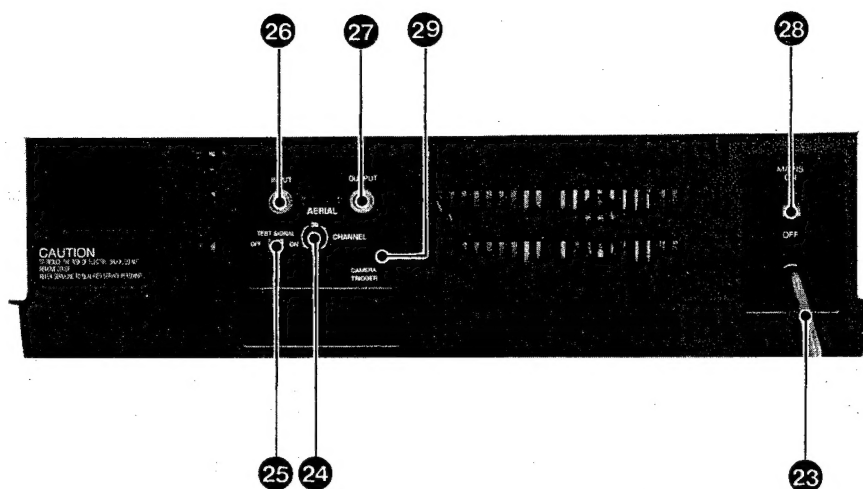
Provides a video signal from the VTR for use by other equipment.

### 15 VIDEO IN jack

Used for connecting a video input from other video equipment. Connecting a plug into this jack cuts off the picture from the tuner and records the video signal connected into this VIDEO IN jack.

Disconnecting the plug automatically resumes the picture from the tuner.

〈REAR VIEW〉



- 16 AUDIO OUT jack**  
Provides an audio signal from the VTR for use by other equipment.
- 17 AUDIO IN jack**  
Used for connecting an audio input from other equipment. Connecting a plug into this jack cuts off the audio signal coming from the tuner and records the audio signal connected to this AUDIO IN jack. Disconnecting the plug automatically resumes the audio signal from the tuner.
- 18 TRACKING control**  
Used when playing cassettes recorded on other machines using the Beta system. Adjust this control to minimize black streaks across the TV picture during playback. Set the control in its center position when recording and during subsequent playback of cassettes recorded on the VTR.
- 19 FF/CUE button**  
The FF/CUE button serves a dual purpose. Push for fast forward of the tape. When this button is pushed during the playback mode, the picture moves quickly forward (about 8 times the normal speed) and you can search for the desired part of the programme.
- 20 REW/REVIEW button**  
The REW/REVIEW button serves a dual purpose. Push for rewinding of the tape. When this button is pushed during the playback mode, the picture moves quickly backward (about 8 times the normal speed) and you can search for the desired part of the programme.
- 21 PLAY button**  
Push for playback of a recorded tape.
- 22 Counter reset button**  
Used to set the tape counter to the "0000" position.
- 23 Power cord**  
Connect this cord into the AC outlet (AC 220V).
- 24 VTR UHF OUTPUT**  
The output from the VTR to your television receiver can be adjusted to any channel from 31 to 39 by using the screwdriver adjustment, as described in "SET YOUR TELEVISION TO THE VTR CHANNEL".
- 25 TEST SIGNAL switch**  
Provides a test signal to assist you to tune your receiver to the output of the VTR, as described in "SET YOUR TELEVISION TO THE VTR CHANNEL".
- 26 AERIAL INPUT terminal**  
Connect your television antenna to this terminal.
- 27 AERIAL OUTPUT terminal**  
Connect this terminal to your television receiver, using the cable provided.
- 28 MAINS switch**  
This switch is located at the rear of the VTR. Switching this ON will supply power to the VTR and the clock.
- 29 CAMERA TRIGGER jack**  
You can start and stop recording by a trigger switch on the camera when you connect the trigger output of the camera to this jack.



## OPERATION

### PREPARATION BEFORE OPERATION

Set the MAINS switch to "ON" before operation as shown below.

## BETRIEB

### VOR DER INBETRIEBNAHME

Vor der Inbetriebnahme den MAINS-Schalter auf ON stellen.

## USO DELL'APPARECCHIO

### PREPARATIVI

Prima di usare l'apparecchio, portare l'interruttore principale (MAINS) in posizione ON (acceso).

### TO INSERT A CASSETTE INTO THE VTR

1. SET THE ON/STAND BY SWITCH TO "ON" BEFORE CASSETTE INSERTION.
2. Insert the cassette into the cassette compartment correctly. The cassette is automatically drawn into the VTR for operation, and compartment door closes automatically.
3. The CASSETTE indicator lamp will light.

#### Notes:

- \* Be sure to turn on the VTR for the installation of the cassette.
- \* Avoid inserting anything into the cassette compartment except the cassette. Otherwise damage may occur to the VTR.
- \* If a cassette is already in the VTR, another cassette cannot be inserted.
- \* If a cassette automatically returns after insertion, take out the cassette and insert it again.

### EINLEGEN EINER KASSETTE IN DEN VIDEOREKORDER

1. VOR EINLEGEN DER KASSETTE DEN ON/STAND BY-SCHALTER AUF ON STELLEN
2. Die Kasette richtig in das Kassettenfach einschieben. Die Kasette wird dann automatisch in den Videorekorder eingezogen, und das Kassettenfach schließt automatisch.
3. Die CASSETTE-Anzeige leuchtet.

#### Hinweise:

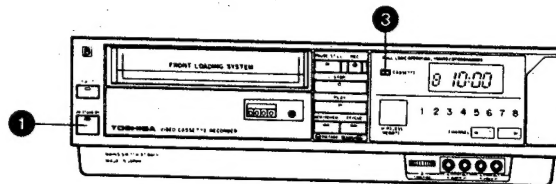
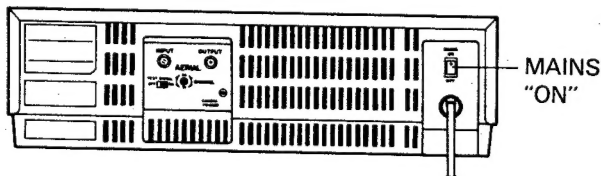
- \* Vor dem Einlegen der Kasette den Videorekorder einschalten.
- \* Keine anderen Gegenstände außer der Kasette in das Kassettenfach einführen, weil der Rekorder sonst beschädigt werden kann.
- \* Wenn bereits eine Kasette im Videorekorder eingelegt ist, kann keine weitere Kasette eingelegt werden.
- \* Wenn eine Kasette nach dem Einlegen automatisch wieder ausgeworfen wird, die Kasette herausnehmen und noch einmal einlegen.

### INSERIMENTO DELLA CASSETTA

1. PRIMA DI INSERIRE LA CASSETTA, PORTARE L'INTERRUTTORE DI ACCENSIONE/ATTESA (ON/STAND BY) IN POSIZIONE ON.
2. Inserire correttamente la cassetta nel vano cassetta. La cassetta viene così automaticamente caricata all'interno dell'apparecchio, e lo sportello del vano si chiude da sé.
3. L'indicatore della cassetta (CASSETTE) si illumina.

#### Note:

- \* Prima di inserire la cassetta, non dimenticare di accendere l'apparecchio.
- \* Non inserire nessun oggetto estraneo nel vano cassetta; ciò potrebbe essere causa di danni.
- \* Se è già inserita una cassetta, non è più possibile inserire una seconda.
- \* Se la cassetta viene automaticamente espulsa subito dopo l'inserimento, estrarla e ripetere l'operazione.



## RECORDING TV PROGRAMMES

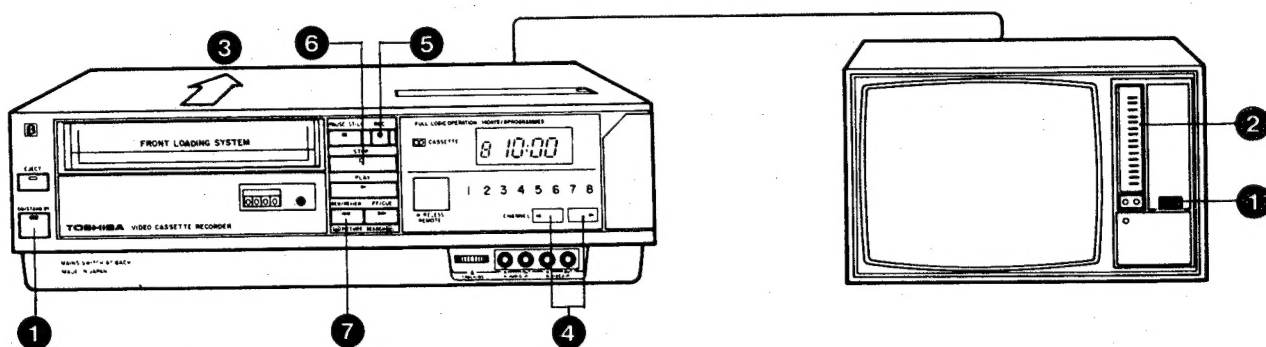
1. Turn ON the ON/STAND BY switch of the VTR and ON/OFF switch of the TV receiver. (Any AUDIO or VIDEO INPUT should be disconnected from the terminals.)
2. Set the TV channel selector to the VTR CHANNEL.
3. Insert the cassette into the compartment.
4. Select the channel which you want to record.
5. Push the REC button of the VTR. The VTR will start recording the programme you see on your TV screen.
6. After recording, push the STOP button.
7. Push the REW/REVIEW button to rewind the tape.

## AUFNAHME VON FERNSEHSENDUNGEN

1. Den ON/STAND BY-Schalter des Videorekorders und den Fernseher einschalten. (Geräte, die an die AUDIO IN- und VIDEO IN-Buchsen angeschlossen sind, sollten abgetrennt werden.)
2. Den Kanalwähler des Fernsehers auf den Videorekorderkanal einstellen.
3. Eine Kassette in das Kassettenfach einlegen.
4. Den Kanal für die Aufnahme wählen.
5. Die REC-Taste des Videorekorders drücken. Dann wird das Programm aufgenommen, das auf dem Fernsehschirm sichtbar ist.
6. Nach der Aufnahme die STOP-Taste drücken.
7. Zum Rückspulen des Bandes die REW/REVIEW-Taste drücken.

## REGISTRAZIONE DI PROGRAMMI TV

1. Accendere il videoregistratore e il televisore. Se qualche cosa è collegato alle prese di ingresso audio o video, scollegarlo.
2. Regolare il selettore del canale del televisore sul canale riservato al videoregistratore.
3. Inserire una cassetta nel vano cassetta.
4. Selezionare il canale dal quale si vuole registrare.
5. Premere il tasto di registrazione (REC) del videoregistratore. Inizia così la registrazione del programma diffuso dal televisore.
6. Alla fine della registrazione, premere il tasto di arresto (STOP).
7. Premere il tasto di riavvolgimento (REW/REVIEW) per riavvolgere il nastro.



## TO PLAY THE RECORDED TAPE

1. First, follow steps 1 to 3 described in "RECORDING TV PROGRAMMES".
2. Push the PLAY button.
3. When the playback is over, push the STOP button.
4. Rewind the tape by pushing the REW/REVIEW button.
5. By pushing EJECT button take out the cassette.

### Note:

When a tape is recorded to an end, the tape is automatically re-wound to the starting position in REC, PLAY and CUE modes, except in timer recording mode.

## WIEDERGABE

1. Zuerst die Schritte 1 bis 3 unter „AUFNAHME VON FERNSEHSENDUNGEN“ ausführen.
2. Die PLAY-Taste drücken.
3. Wenn die Wiedergabe zu Ende ist, die STOP-Taste drücken.
4. Durch Drücken der REW/REVIEW-Taste das Band zurückspulen.
5. Zum Entnehmen der Kassette die EJECT-Taste drücken.

### Hinweis:

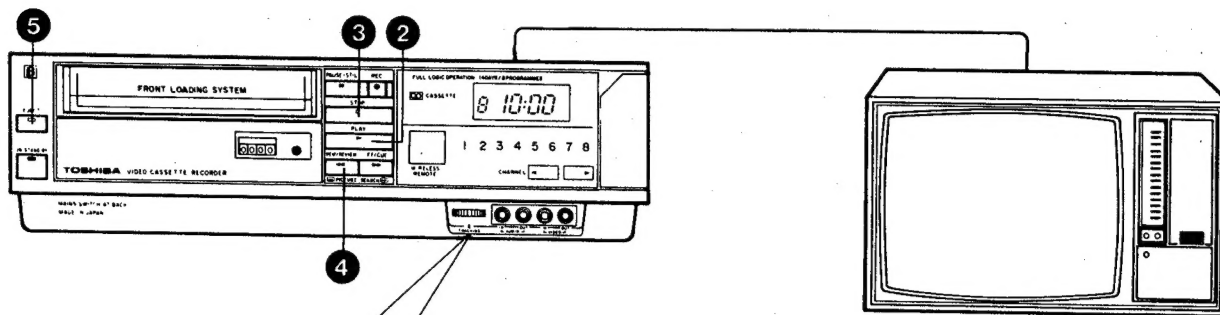
Wenn ein Band bis zum Ende aufgenommen wird, wird es in den Betriebsarten REC, PLAY und CUE automatisch zur Startposition zurückgespult, außer bei der Schaltuhr-Aufnahme.

## RIPRODUZIONE DI NASTRI

1. Eseguire quanto di cui ai punti da 1 a 3 di REGISTRAZIONE DI PROGRAMMI TV.
2. Premere il tasto di riproduzione (PLAY).
3. Alla fine dell'riproduzione, premere il tasto di arresto (STOP).
4. Premere il tasto di riavvolgimento (REW/REVIEW) per riavvolgere il nastro.
5. Premere il tasto di espulsione della cassetta (EJECT) ed estrarre quest'ultima.

### Nota:

Se il nastro è registrato fino alla fine, esso viene automaticamente riavvolto fino all'inizio se è inserita la funzione REC, PLAY o CUE; non però nel caso di registrazione con timer.



When playing pre-recorded or tapes recorded on another machine horizontal streaks of snow might show on the picture. Adjustment of the TRACKING control will help to reduce this effect. Allow a second or two for new settings of this control to take effect. Always return this control to its center position after use. This position is indicated by a definite notch can be felt as the control is turned.

Bei der Wiedergabe von vorbespielten Bändern oder von Bändern, die mit einem anderen Gerät aufgenommen wurden, können auf dem Bild horizontale Streifen („Schnee“) auftreten. Durch Einstellen des TRACKING-Reglers können diese Störungen reduziert werden. Nach einer Einstellung des Reglers ein bis zwei Sekunden warten, bis die Einstellung wirksam wird. Nach der Wiedergabe dieser bestimmten Kassette den Regler immer wieder auf die Mittelstellung zurückdrehen. Diese Stellung ist durch eine Kerbe gekennzeichnet, die beim Drehen des Reglers gefühlt werden kann.

Riproducendo dei nastri preregistrati o registrati con un altro apparecchio, è possibile che sullo schermo appaiano delle righe nere orizzontali o neve. Eliminare quanto più possibile questo effetto facendo girare il comando di tracciamento (TRACKING). L'effetto della regolazione è visibile sullo schermo solo dopo uno o due secondi. Dopo la visione della cassetta particolare, riportare il comando di tracciamento (TRACKING) in posizione centrale. La posizione centrale è segnalata dallo scatto della manopola su una tacca.

### RECORDING ONE PROGRAMME WHILE VIEWING ANOTHER

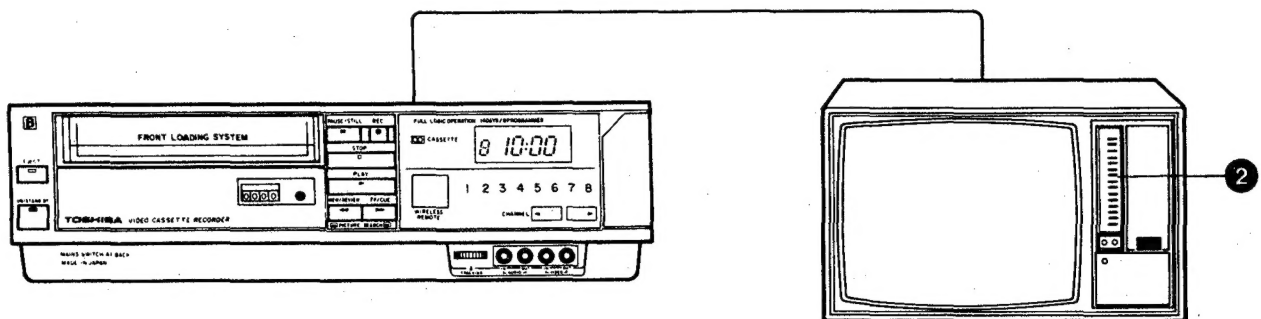
1. Follow steps 1 to 5 as described in "RECORDING TV PROGRAMMES".
2. On your TV receiver, select the channel you wish to view. Recording of the other programme will continue.

### AUFNEHMEN EINES PROGRAMMS UND GLEICHZEITIGES ANSEHEN EINES ANDEREN

1. Die Schritte 1 bis 5 unter "AUFNAHME VON FERNSEHPROGRAMMEN" durchführen.
2. Mit dem Kanalwähler des Fernsehers den Kanal einstellen, den Sie sehen wollen. Die Aufnahme des anderen Programms wird dadurch nicht beeinflusst.

### REGISTRAZIONE DI UN PROGRAMMA DURANTE LA VISIONE DI UN ALTRO

1. Procedere secondo i punti da 1 a 5 di REGISTRAZIONE DI PROGRAMMI TV.
2. Sul televisore, selezionare il canale che si desidera guardare. La registrazione dell'altro programma continua indisturbata.



## EDITING A RECORDING

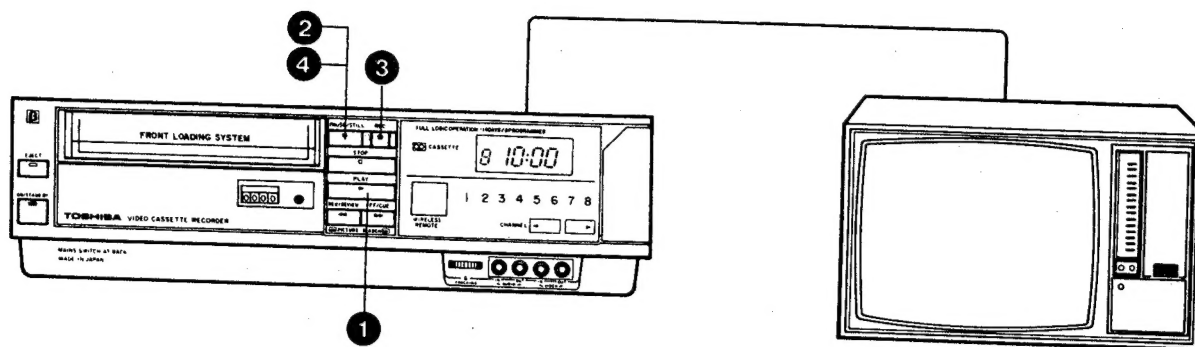
1. Push PLAY button and watch the programme until the exact point is reached where you want the new recording to begin.
2. Push the PAUSE/STILL button. The TV screen will display the still picture.
3. Push the REC button. The programme material to be recorded will appear on the TV.
4. When you want to begin recording, push the PAUSE/STILL button again. The new programme material will directly follow the previously recorded material without interruption.

## VIDEOSCHNITT

1. Die PLAY-Taste drücken und die Stelle suchen, an der die neue Aufnahme beginnen soll.
2. Dann die PAUSE/STILL-Taste drücken. Auf dem Fernsehschirm ist das Standbild.
3. Die REC-Taste drücken. Das Programmmaterial für die Aufnahme erscheint auf dem Fernsehschirm.
4. Zum Starten der Aufnahme die PAUSE/STILL-Taste noch einmal drücken. Die neue Aufnahme wird ohne Unterbrechung direkt an die vorige Aufnahme angehängt.

## MONTAGGIO NASTRO (EDITING)

1. Premere il tasto di riproduzione (PLAY) e guardare il programma fino al punto dal quale si desidera iniziare una nuova registrazione.
2. Nel punto sopradetto, premere il tasto di pausa e immagine ferma (PAUSE/STILL). Sul teleschermo appare l'immagine ferma.
3. Premere il tasto di registrazione (REC). Il programma da registrare appare sul teleschermo.
4. Nel momento in cui si vuole dare il via alla registrazione, premere il tasto di pausa (PAUSE/STILL). Il nuovo materiale viene così registrato immediatamente subito dopo quello precedente, senza interruzione alcuna tra i due programmi.



## VTR TO VTR DUBBING

### USING THE LINE SIGNALS

1. Connect VIDEO OUT/AUDIO OUT of VTR 1 to VIDEO IN/AUDIO IN of VTR 2.
2. Play the tape on VTR 1 and record it on VTR 2.

## ÜBERSPIELEN

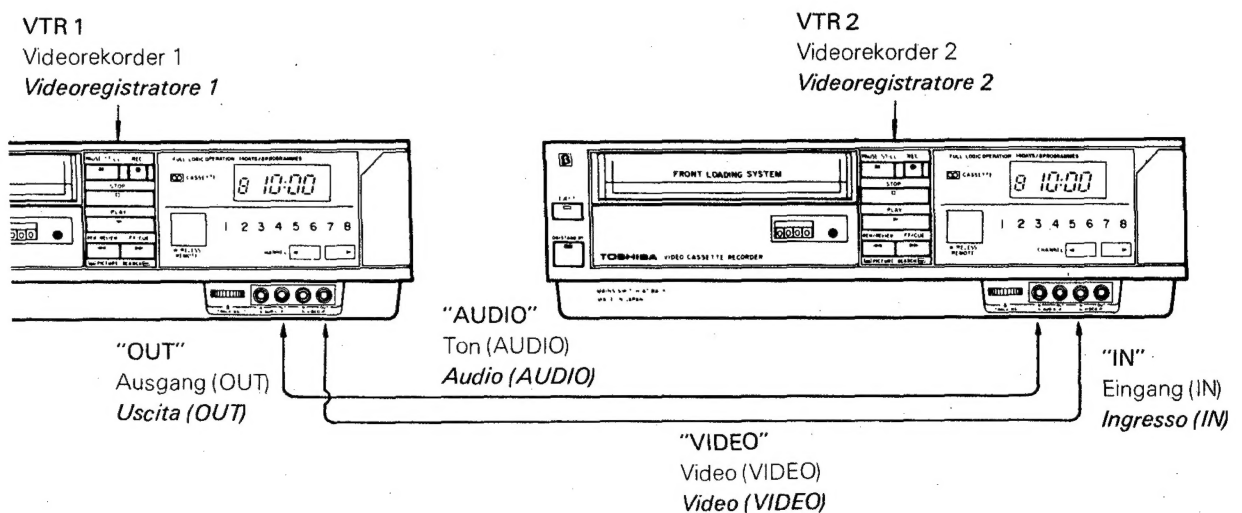
### VERWENDUNG DER VIDEOSIGNALE

1. VIDEO OUT/AUDIO OUT des Videorekorders 1 mit VIDEO IN/ AUDIO IN des Videorekorders 2 verbinden.
2. Die Wiedergabe auf Videorekorder 1 und die Aufnahme auf Videorekorder 2 durchführen.

## COPIAGGIO DA UN VIDEOREGISTRATORE ALL'ALTRO

### CON I SEGNALI DI LINEA

1. Collegare le prese di uscita audio e video (VIDEO OUT/AUDIO OUT) del videoregistratore 1 con quelle (VIDEO IN/AUDIO IN) del videoregistratore 2.
2. Riprodurre il nastro con il videoregistratore 1 e registrare con il videoregistratore 2.





## PICTURE SEARCH

1. Push the PLAY button (In play mode).
2. When the REW/REVIEW or FF/CUE button is pushed the picture moves quickly (about 8 times the normal speed) in reverse or forward direction and you can search for the desired parts of the programme. (Push these buttons again and the VTR will go to the REW or FF mode.)
3. When you want to return to the normal playback mode, press the PLAY button again.

### Notes:

- \* During picture search operation, a few noise bars will appear on the playback picture.
- \* During picture search operation, if the picture flows vertically on the TV screen, adjust the V-HOLD knob on the TV set.
- \* During picture search operation, its speed will be increased until the same as normal FF or REW speed when there is nothing recorded on the tape.
- \* During picture search operation, the sound will be muted.

## BILDSUCHLAUF

1. Die PLAY-Taste drücken (die Wiedergabe einschalten).
2. Wenn die REW/REVIEW- oder die FF/CUE-Taste gedrückt wird, läuft das Bild (mit etwa 8-facher Normalgeschwindigkeit) in Rückwärts- bzw. Vorwärtsrichtung, und jede gewünschte Bandstelle kann leicht gefunden werden. (Durch nochmaliges Drücken der entsprechenden Taste schaltet der Videorekorder auf Rückspulen bzw. Schnellvorlauf.)
3. Zum Zurückschalten auf Wiedergabe die PLAY-Taste noch einmal drücken.

### Hinweise:

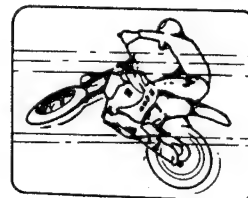
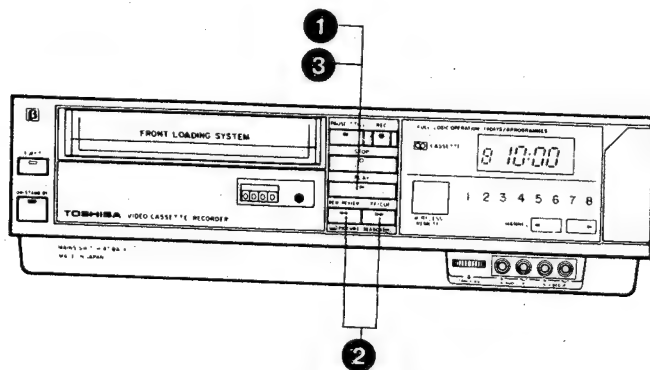
- \* Während des Bildsuchlaufs erscheinen einige Störzeilen auf dem Wiedergabebild.
- \* Wenn das Bild während des Bildsuchlaufs auf dem Fernsehschirm vertikal wandert, den Vertikal-Bildfangregler des Fernsehers einstellen.
- \* Beim Bildsuchlauf wird die Geschwindigkeit auf die normale Schnellvorlauf- bzw. Rückspulgeschwindigkeit erhöht, wenn sich keine Aufnahme auf dem Band befindet.
- \* Beim Bildsuchlauf kann der Ton nicht gehört werden.

## RICERCA IMMAGINE

1. Premere il tasto di riproduzione (PLAY).
2. Premendo il tasto di riavvolgimento (REW/REVIEW) o di avanzamento veloce (FF/CUE), le immagini vengono riprodotte ad alta velocità (circa 8 volte la velocità di riproduzione normale), nella direzione indietro o in avanti, e si può così cercare la parte di programma desiderato. (Premendo questi tasti ancora una volta, il nastro viene semplicemente avanzato o riavvolto velocemente.)
3. Per ritornare alla funzione di riproduzione, premere il tasto di riproduzione (PLAY).

### Note:

- \* Durante la ricerca dell'immagine, la riproduzione è parzialmente disturbata dalle righe del rumore.
- \* Se, durante la ricerca dell'immagine, questa dovesse sfuggire verso l'alto del teleschermo, fissarla per mezzo del comando V-HOLD del televisore.
- \* Durante la ricerca dell'immagine, la velocità aumenta fino alla velocità di avanzamento veloce o riavvolgimento normale, se sul nastro non è registrato niente.
- \* Durante la ricerca dell'immagine, il suono viene escluso.



## STILL PICTURE

1. Push the PLAY button (in play mode).
2. To stop the tape momentarily or to watch the still picture during playback, push the PAUSE/STILL button.
3. Push PAUSE/STILL button again to release still picture and return to normal playback.

### Notes:

- \* The PAUSE/STILL mode will cease automatically after a lapse of approximately 7 minutes. The VTR will return to PLAY mode from STILL.
- \* A few noise bars will appear on the TV screen. Press the PLAY button to move the noise bars to top or bottom on screen.

## STANDBILD

1. Die PLAY-Taste drücken (die Wiedergabe einschalten).
2. Zum Unterbrechen des Bandlaufs oder Ansehen des Standbilds bei der Wiedergabe die PAUSE/STILL-Taste drücken.
3. Druch nochmaliges Drücken der PAUSE/STILL-Taste wird die Wiedergabe fortgesetzt.

### Hinweise:

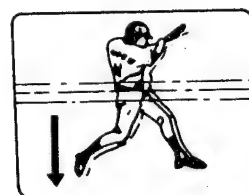
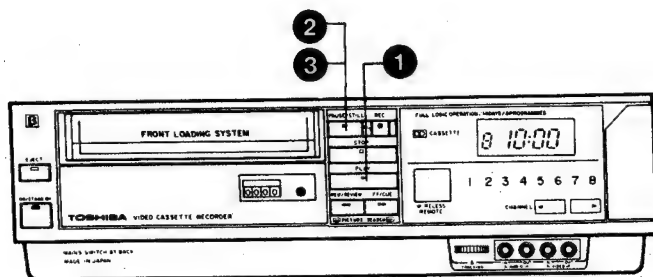
- \* Die PAUSE/STILL-Betriebsart wird automatisch nach etwa 7 Minuten ausgeschaltet. Der Rekorder kehrt vom Standbild auf Wiedergabe zurück.
- \* Einige Störzeilen erscheinen auf dem Fernsehschirm. Die PLAY-Taste drücken, um die Störzeilen zur Ober- oder Unterseite des Schirms zu bewegen.

## IMMAGINE FERMA

1. Premere il tasto di riproduzione (PLAY).
2. Per fermare il nastro provvisoriamente, come pure per guardare un'immagine ferma, premere il tasto di pausa (PAUSE/STILL).
3. Per disattivare l'immagine ferma e ritornare alla riproduzione normale, premere il tasto di pausa (PAUSE/STILL).

### Note:

- \* La funzione di pausa e immagine ferma si disinserisce da sé dopo circa 7 minuti, e viene sostituita dalla funzione di riproduzione.
- \* Sullo schermo appaiono delle righe del rumore. Premere il tasto PLAY per spostarle verso l'alto o il basso.



### FORWARD SLOW

1. Push the PLAY button (in play mode).
2. Push the PAUSE/STILL button (STILL mode).
3. Keep the PLAY button pressed, the picture will move slowly in the forward direction at 1/9 times normal speed.

**Note:**

\* During slow motion, a few noise bars will appear on the playback picture.

### LANGSAMER VORLAUF

1. Die PLAY-Taste drücken (die Wiedergabe einschalten).
2. Die PAUSE/STILL-Taste drücken (Standbild).
3. Die PLAY-Taste gedrückt halten, das Bild läuft dann langsam in Vorwärtsrichtung mit 1/9-facher Normalgeschwindigkeit.

**Hinweis:**

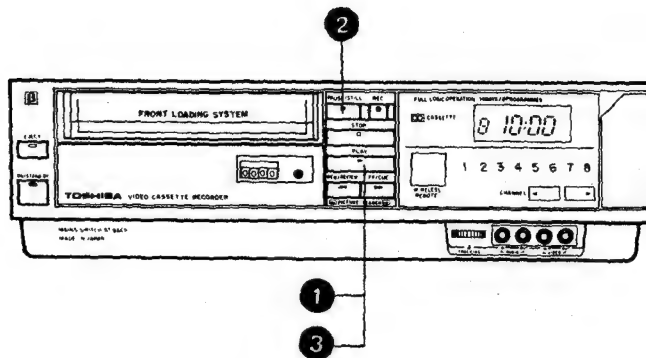
\* Beim langsamen Vorlauf erscheinen einige wenige Störzeilen auf dem Wiedergabebild.

### RALLENTATORE

1. Premere il tasto di riproduzione (PLAY).
2. Premere il tasto di pausa (PAUSE/STILL).
3. Mantener premuto il tasto di riproduzione (PLAY). Le immagini vengono riprodotte al rallentatore nella direzione in avanti, alla velocità di 1/9 quella normale.

**Nota:**

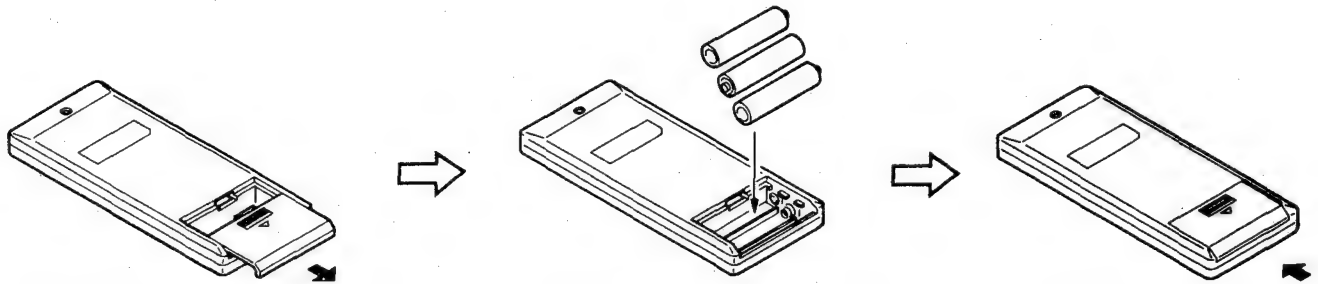
\* Durante la riproduzione al rallentatore, sul teleschermo appaiono alcune righe del rumore.



## REMOTE CONTROL OPERATION

### INSTALLING BATTERIES

How to install batteries in the Remote Control Unit



Remove the battery cover on the reverse side of the unit.

Install 3 batteries ("AAA" size) into the unit.

**Note:** Carefully install batteries to match the polarity diagrams.

Close the battery cover.

### REMOTE CONTROL OPERATION RANGE

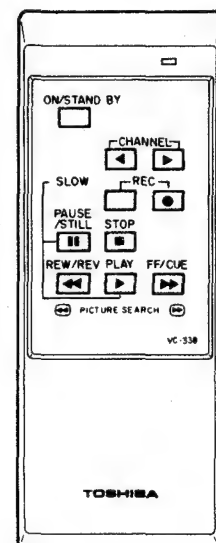
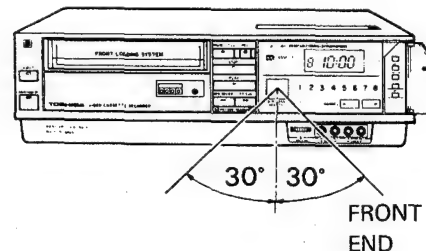
The Remote Control Unit must have "Line of Sight" to the receiver on the front of the VTR. It must be within an angle of 30° either side of center. The maximum operating distance is about 7 meters.

Point the Front End of the Remote Control Unit at the VTR.

\*The Remote Control Unit has same function as VTR.

**Note:** It is not able to move the noise bar in still picture to top or bottom of the screen by the Remote Control Unit.

- Notes:**
1. If the Remote Control Unit is not to be used for a long period of time, remove the batteries to avoid possible damage from battery corrosion.
  2. Avoid mechanical shock to this unit.
  3. Keep this unit away from extremely hot or humid places.



## CHANNEL SETTING

This VTR is equipped with a tuning system which gives you easy channel selection with push buttons. The tuning system consists of CHANNEL select buttons and Tuning thumb wheels, which have been set to UHF channels at the factory.

If you want to tune another desired channel, set the VTR described below.

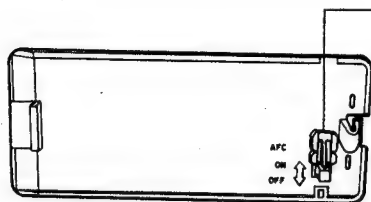
1. Set the TV to the VTR CHANNEL
2. Set the ON/STAND BY switch to "ON".
3. Push the CHANNEL select button to the position which you would like to tune in. (The selected channel will light up.)
4. If you are tuning in channels 2, 3 or 4, set the Channel band switch to the I position. If you are tuning in channels 5, 6, 7, 8, 9, 10, 11 or 12, set the Channel band switch to the III position. If you are tuning in channels from 21 towards 69, set the Channel band switch to the U position. And then turn the Tuning thumb wheel right to left.
5. Rotate the appropriate Tuning thumb wheel in the desired direction until the picture appears on the screen, set for best picture and sound.
6. Repeat steps 3 to 5 for any other channel selector you wish to use.
7. Close the preset tuning compartment door.

**Note:**

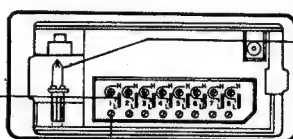
The AFC automatically switch ON when you close the tuning compartment door.

I : Lower VHF band	(channels 2 - 4)
III : Higher VHF band	(channels 5 - 12)
U : UHF band	(channels 21 - 69)

Confirm that the AFC switch is in the ON position when you close the tuning compartment door. When the tuning compartment door is closed, the AFC switch automatically sets ON mode. If you desire to set the AFC switch OFF, slide the AFC switch OFF position.

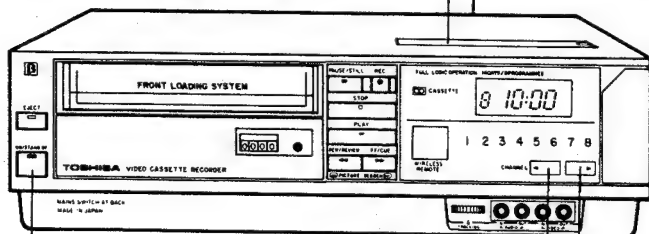


5 Tuning thumb wheel



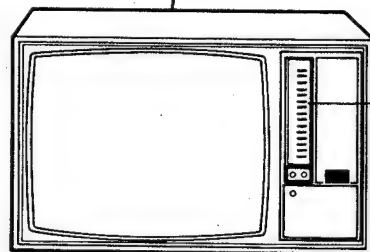
Adjusting Tool: Used to change the Channel band switch to I, III or U position.

4 Channel band switch



2

3 CHANNEL select button



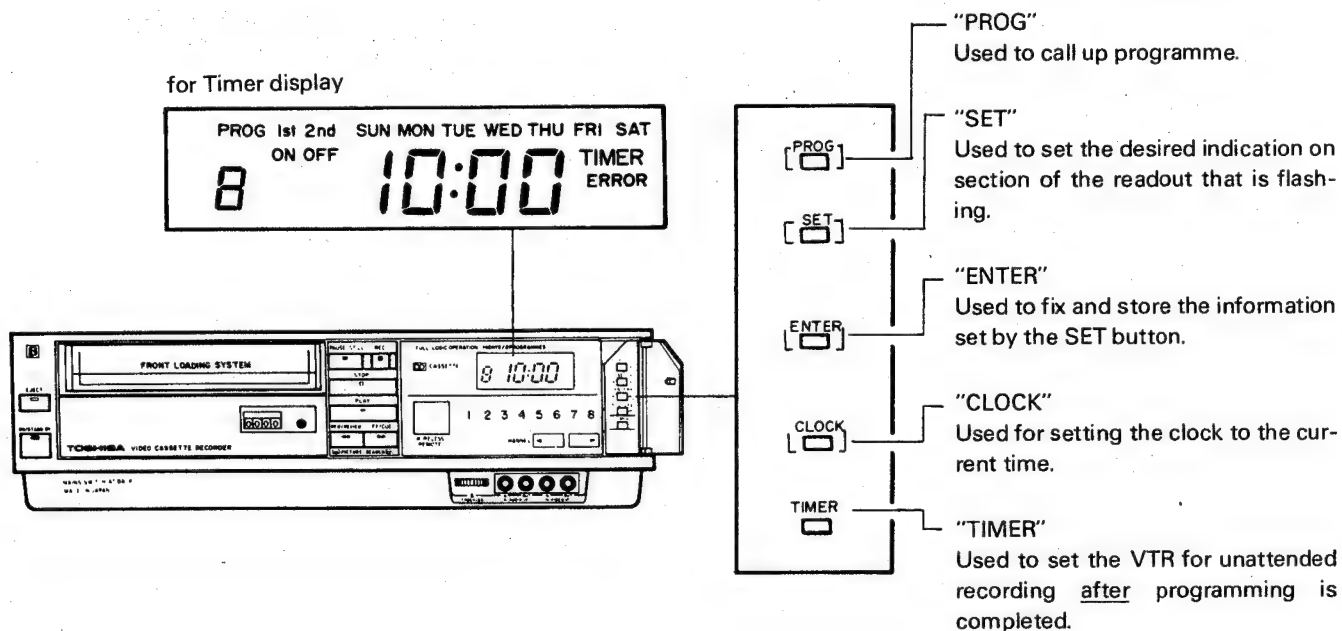
1

## TIMER

### PROGRAMMABLE TIMER

- \* The clock used is of the 24-hour type.
- \* Using the timer enables you to preset your VTR as long as 14 days in advance to record up to 8 programmes at different times.
- \* The timer also enables you to preset your VTR at the same time everyday and/or at the same day of week every week.

The clock display device is used also for programming, and its total display function is as illustrated below:

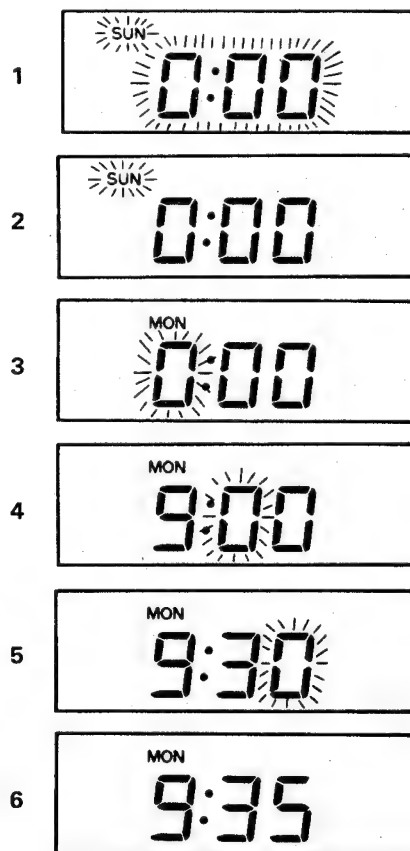




## SETTING THE CLOCK

### Example ; Monday 9 : 35

1. When connecting the VTR to the AC power,  
The digital display will start flashing "SUN" "0 : 00".
2. Press the CLOCK button.  
(The "SUN" will flash.)
3. Press the SET button until the day indicator reaches  
correct day. --- "MON"  
Press ENTER button.  
(The hour indicator will now be flashing.)
4. Press the SET button until the hour indicator reaches  
correct figure. --- "9"  
Press ENTER button.  
(The tens minute digit indicator will now be flashing.)
5. Press the SET button until the tens minute digit indicator  
reaches correct figure. --- "3"  
Press ENTER button.  
(The minute digit indicator will now be flashing.)
6. Press the SET button until the minute digit indicator  
reaches correct figure. --- "5"  
Press ENTER button.  
(Press the ENTER button to a correct time signal for the  
zero second setting.)



#### Notes:

1. Always be certain the clock is set to the correct time and day before attempting programming.
2. After 2 ~ 3 seconds of power interruption, if the clock flashes "SUN" "0 : 00", the clock and programming will have to be reset.
3. The clock setting can be made whether the power is turned on or stand by.

## PROGRAMMING WHILE YOU ARE AWAY (TIMER PROGRAMMING)

The programmable timer is capable of storing the memories in the following sequence:

1. Program number (up to 8)
2. 1st, 2nd or both weeks
3. Day of the week
4. Hour digit (for record-starting ON time)
5. Ten minutes digit (for record-starting ON time)
6. The minute digit (for record-starting ON time)
7. Hour digit (for record-ending OFF time)
8. Ten minutes digit (for record-ending OFF time)
9. The minute digit (for record-ending OFF time)
10. Channel number

And the programme setting is designed for the following fundamental procedures:

- I. To push the SET button to have the desired indication on the flashing readout display.
- II. Then to push the ENTER button to fix and store the input or desired information into the memory.

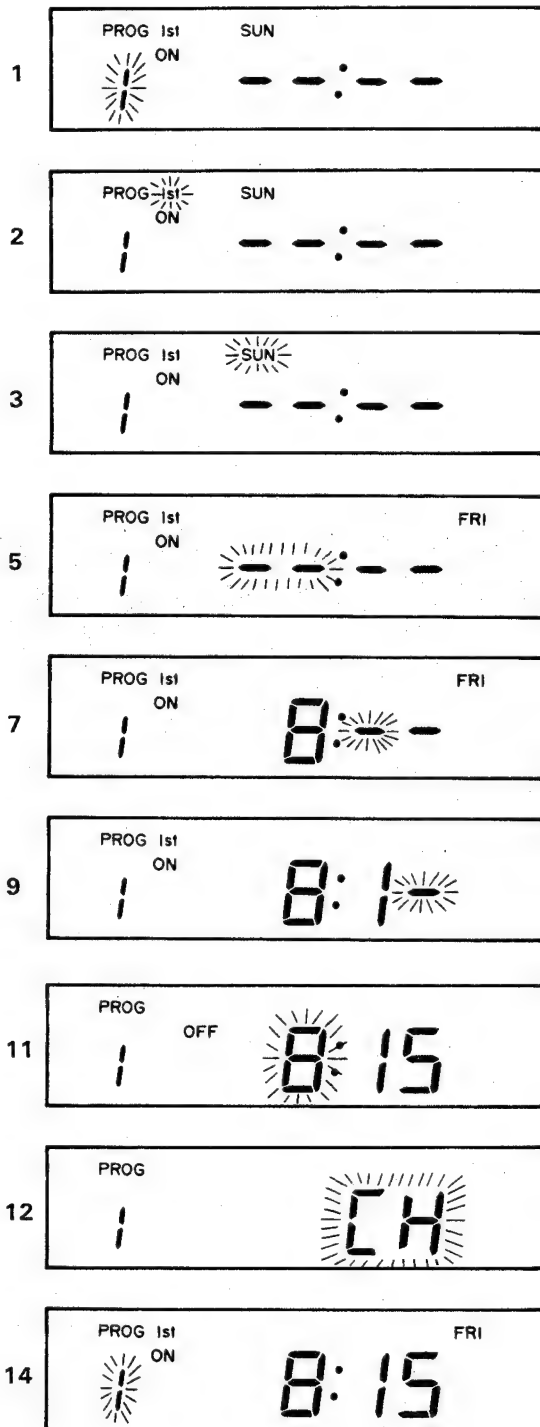
**Example I: Programme No. 1, Channel 6 on Friday this (1st) week from 8 : 15 to 9 : 00**

After turning the VTR "ON" by pressing the ON/STAND BY switch,

1. Press the PROG (programme) button. Then Programme number "1" will be flashing. (For other programme numbers, press the SET button until you reach the desired number.)
2. Press the ENTER button. Then "1st" will be flashing. (For the "2nd" week or both "1st" and "2nd" weeks, press the SET button, until you have the desired indication flashing.)
3. Press the ENTER button. Then "SUN" will be flashing.
4. Press the SET button until the day is "FRI".
5. Press the ENTER button. Then the hour indicator, "--" will be flashing.
6. Press the SET button until the hour reads "8".
7. Press the ENTER button. Then tens minute digit will be flashing.
8. Press the SET button until the tens minute digit reads "1".
9. Press the ENTER button. Then the minute digit "--" will be flashing.
10. Press the SET button until the minute digit reads "5".
11. Press the ENTER button. Then "OFF" display will appear with "8" flashing, being ready for the "OFF" time setting.
12. Set the "OFF" time to "9 : 00" in the same manner as in the above 6 through 11. Then "CH" will now be flashing.
13. Select Channel 6 by pushing the SET button.
14. Press the ENTER button. Then the "PROG 1" will be flashing. The Programme No. 1 has been now set.
15. For programme No. 2 press the SET button again. Then, "2" will be flashing, being ready for next programme.

**Notes:**

1. If you do not wish to set another programme, press the TIMER button.
2. By pressing the TIMER button after completing programmes as in the above Note 1, your VTR is all set for unattended timer recording.
3. When you want to operate VTR after completion of timing operations, set the ON/STAND BY switch of the VTR to ON. After operating, be sure to push the TIMER button.



**Example II: Programme No. 2, Channel 4 on Wednesday next (2nd) week from 6 : 00 to 6 : 30**

1. Follow the same steps 1 and 2 as in the above EXAMPLE I.
2. Press the SET button until "2nd" flashes.
3. Follow the same steps 3 through 14 as in the above EXAMPLE I.

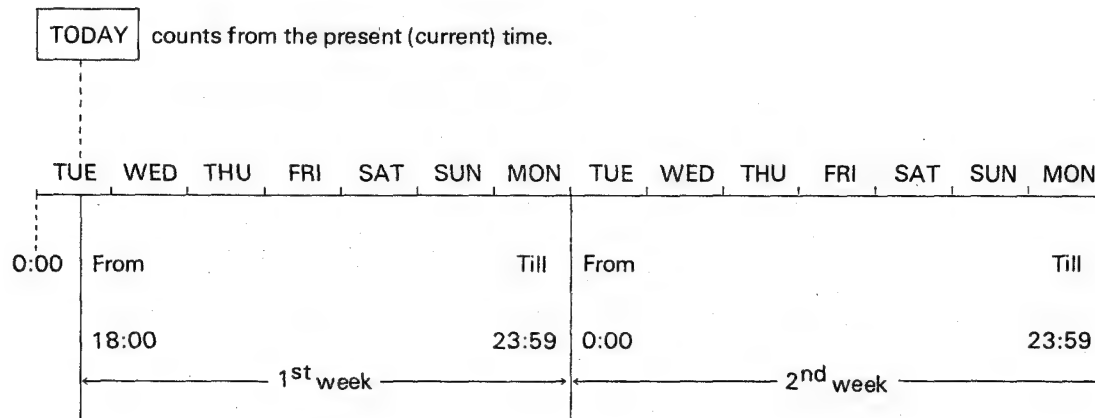
**Example III: Programme No. 3, Channel 8, everyday of the week from 23 : 00 to 23 : 15**

1. Follow the same steps 1 and 2 as in the above EXAMPLE I.
2. Press the SET button until both "1st" and "2nd" flash. Press the ENTER button.
3. Press the SET button until the days of week all flash ("SUN MON TUE WED THU FRI SAT").
4. Follow the same steps 3 through 14 as in the above EXAMPLE I.

**Example IV: Programme No. 4, Channel 10, every Saturday from 19 : 00 to 19 : 30**

1. Follow the same steps 1 and 2 as in the above EXAMPLE I.
2. Press the SET button until both "1st" and "2nd" flash.
3. Follow the same steps 3 through 14 as in the above EXAMPLE I.

**Note:** The 14 days period is divided into the "1st" and "2nd" weeks, and the time span of each week for the timer memory is calculated as illustrated below:



# SECTION 2. ELECTRICAL ADJUSTMENTS

## 1. REMOTE CONTROL ADJUSTMENT METHOD

Adjustment Part	Measuring Point	Measuring Equipment	Conditions of Adjustment
LR61	TPR65	Oscilloscope	STOP

### Adjustment Method

- (1) Place the remote control transmitter in front of the light receiving section and keep the STOP key pressed.
- (2) Adjust LR61 to obtain the maximum voltage at TPR65.

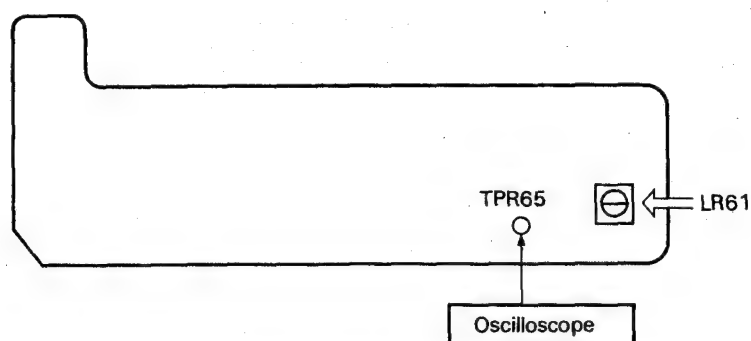
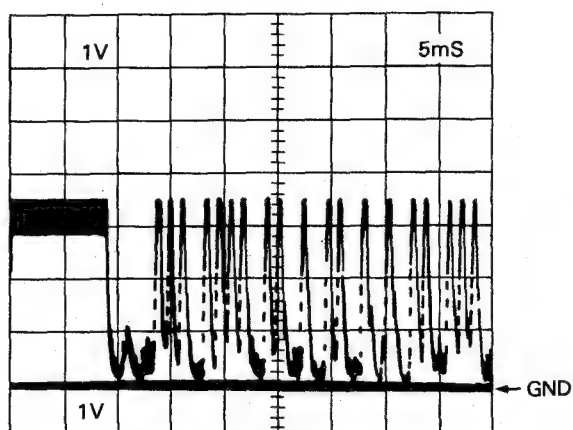
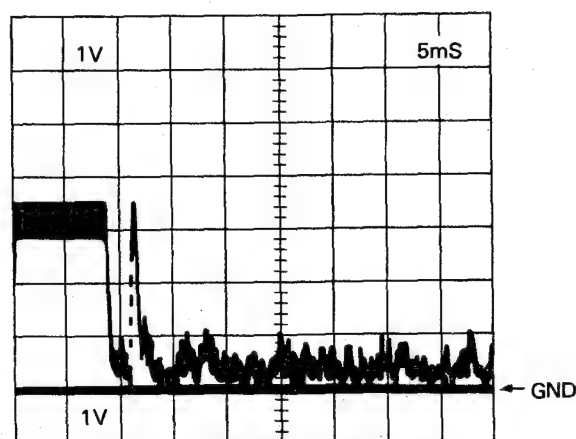


Fig. 1 Remote switch unit (parts side)



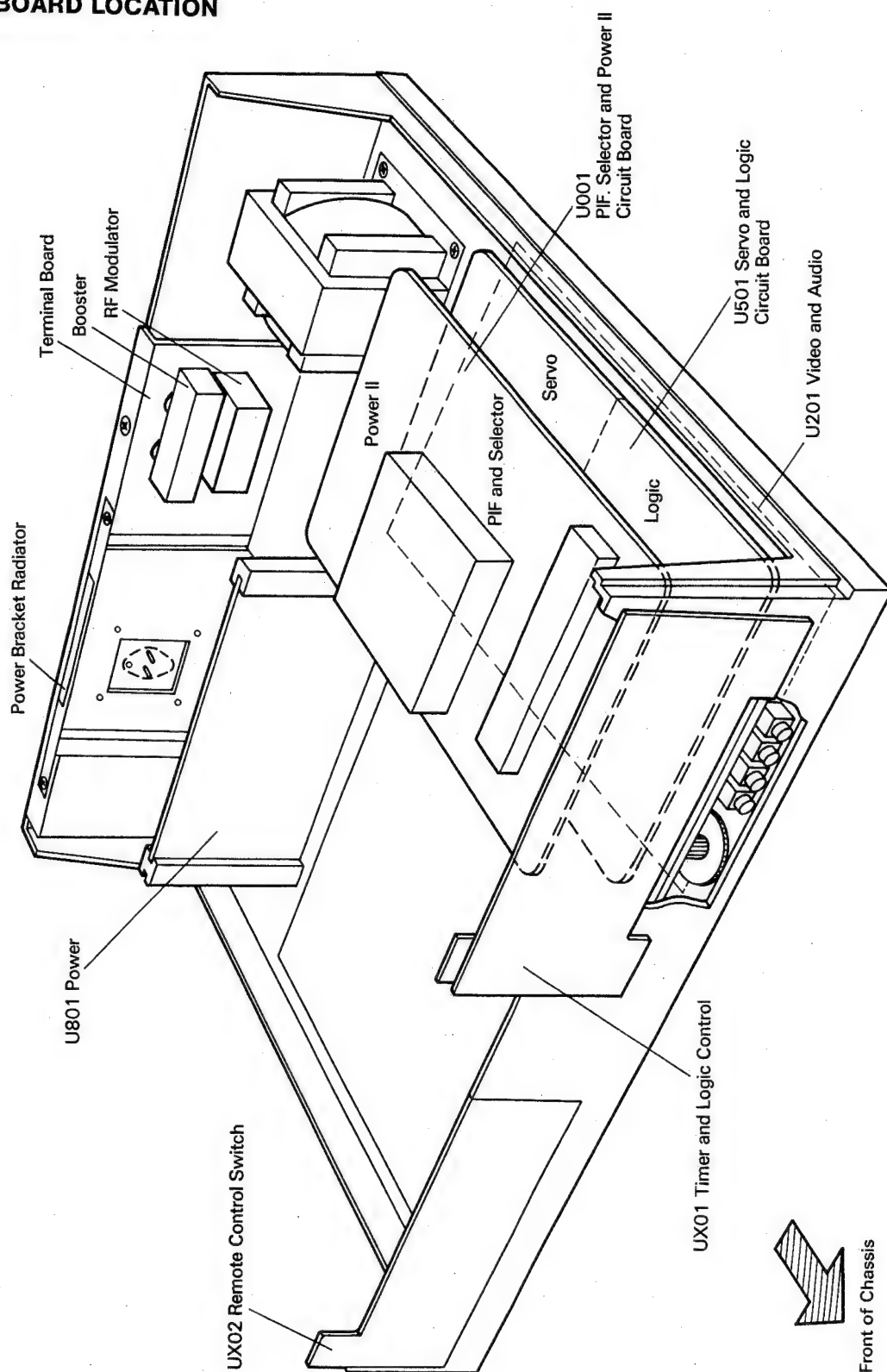
(a) Transmission code (first time)  
(at the moment when the transmitter key is pressed)



(b) Transmission code (second time)

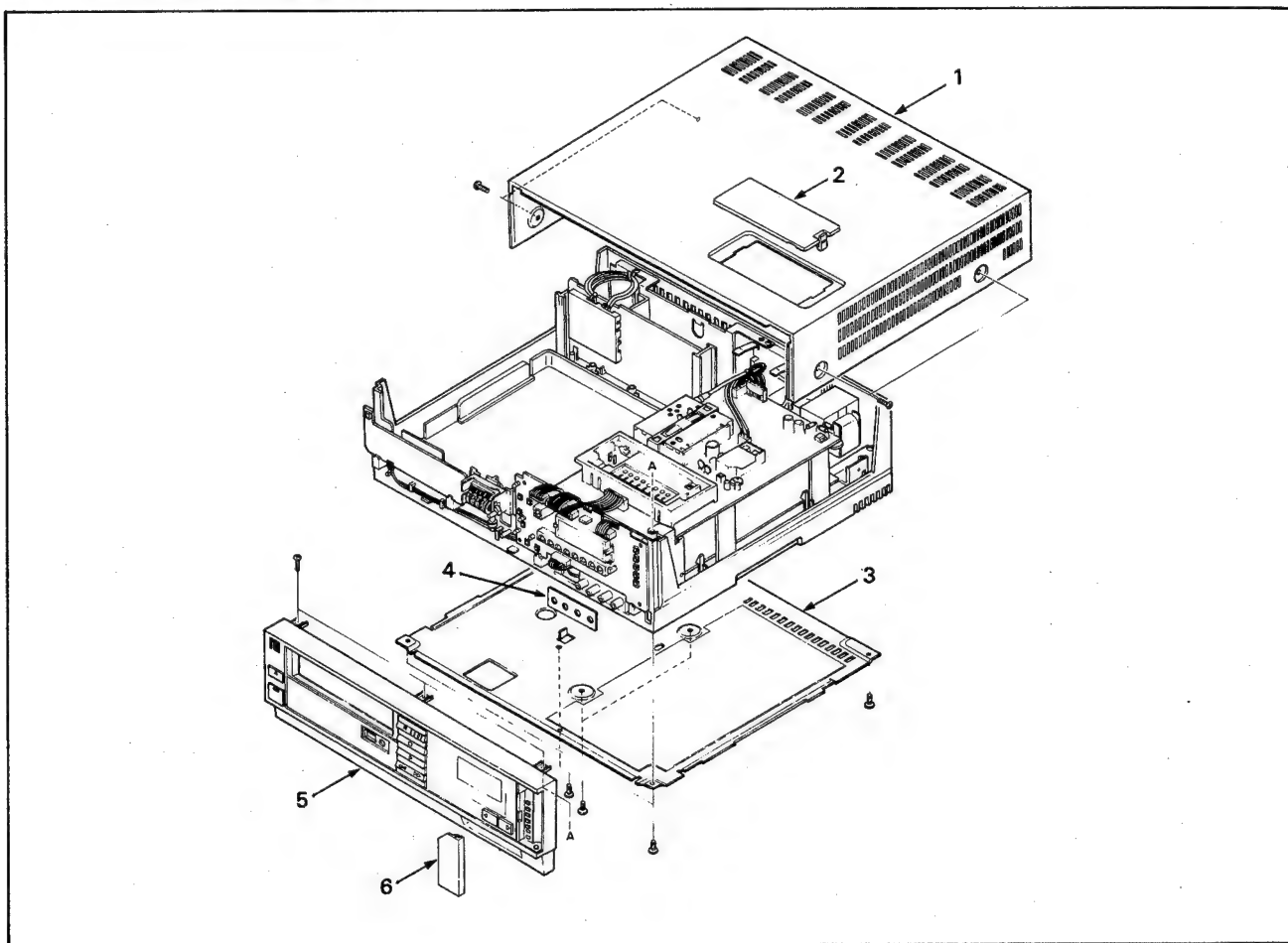
Fig. 2 TPR65 voltage waveform

## 2. PW BOARD LOCATION



# SECTION 3. EXPLODED VIEWS AND PARTS LIST

## 3-1. CABINET ASSEMBLY

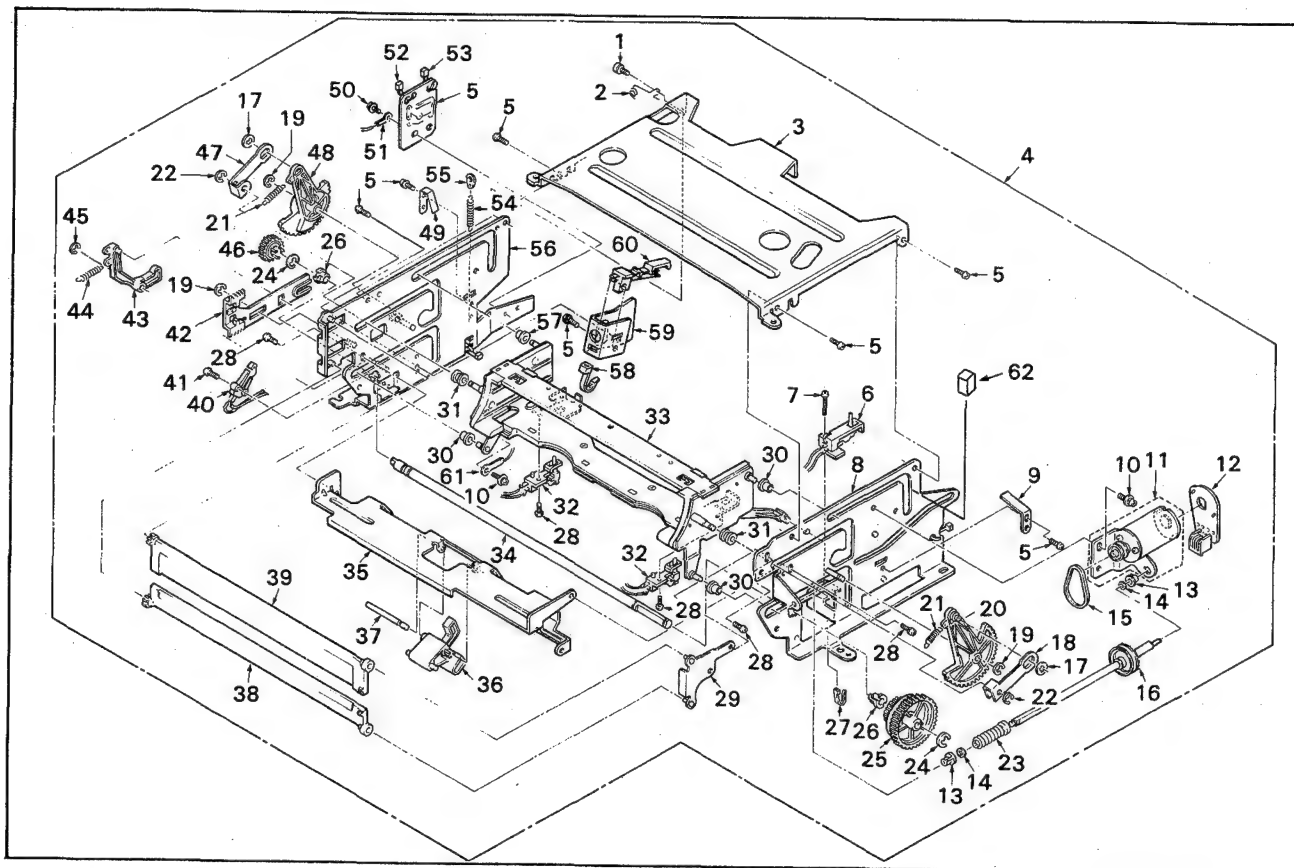


Key No.	Location No.	Part No.	Description
1	A102	70814221	Top Cover
2	A102B	70863164	Door, Top
3	A103		Bottom Shield Assembly
4	A106		Cover, Line
5	A101	70812244	Front Panel
6	A101B	70863131	Door, Front

**NOTE:** Parts without Parts Number in Parts List are not available as replacement parts.



### 3-2. FRONT LOADING ASSEMBLY

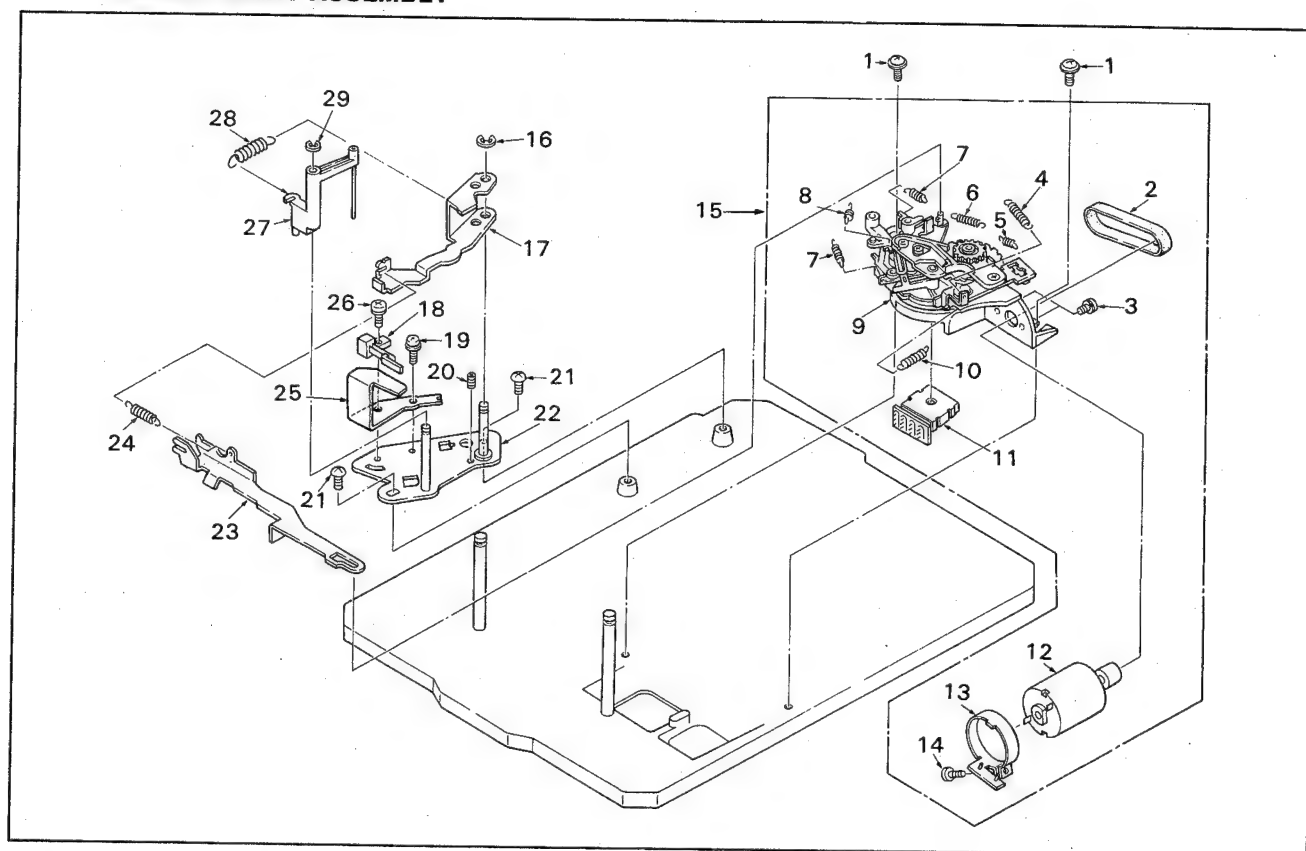


Key No.	Location No.	Part No.	Description
1	K360B		Screw, 2.6×6 mm
2	K348		Spring, Wire Hold
3	K360		Top Board
4	K301	70314102	Front Loading Assembly
5	K360A		Screw, 2.6×5 mm
6	S621	70145111	Switch, Error Erase Prevention
7	S621F		Screw, 2.6×12 mm
8	K320		Bracket, Right
9	K337		Spring
10	K325A		Screw, 3×5 mm
11	K325	70324190	Bracket Assembly, Motor
12	U621		Switch Trans Board, Front Loading
13	K336		Shaft Holder B
14	K322J		Polyslider, 2.6×4.7×0.5 mm
15	K335	70342121	Belt, Square, Loading
16	K322		Worm Shaft Assembly
17	K334	70394060	Washer C STW-3
18	K330		Link, Connector, Right
19	K333A		E-Ring, 3 mm
20	K333		Arm, Gear
21	K332		Spring, Cassette Lock
22	K330A	70394075	E-Ring
23	K326		Worm Gear
24	K353A		E-Ring
25	K353		Worm Wheel
26	K350		Shaft Holder A
27	S621C		Lead Holder
28	K354A		Screw, 2.6×4 mm
29	K223		Bracket Assembly
30	K358		Guide Roller B
31	K357		Guide Roller A

Key No.	Location No.	Part No.	Description
32	S632	70145193	Switch, Cassette Detect
33	K303A		Bracket, Cassette Holder
34	K352		Shaft Gear
35	K354		Bracket, Cassette Guide
36	K355		Lever
37	K356		Shaft
38	K371	70863135	Door, Lower
39	K370	70863134	Door, Upper
40	S631	70145195	Switch, Slot Out
41	S631E		Screw, 2×10 mm
42	K342		Slider, Door
43	K343		Lever, Door
44	K345		Spring, Door Chose
45	K343A		E-Ring, 2 mm
46	K351		Gear, Drive L
47	K331		Link, Connector, Left
48	K340		Cam Gear
49	K338	70352065	Spring
50	U631D		Screw, 3×6 mm
51	K372	23094301	Lag Terminal
52	U631B		Lead Holder
53	U631		Switch Trans Board Front Loading
54	K347		Spring, Wire Guide
55	K346		Guide Plate
56	K321		Bracket, Left
57	K359		Guide Roller C
58	S634C		Lead Holder
59	K349		Bracket, Cassette Down
60	S634	70145168	Switch, Leaf
61	W134		Wire
62	K365		Cushion, FL motor

**NOTE:** Parts without Parts Number in Parts List are not available as replacement parts.

### 3-3. LOADING CAM UNIT COMPARTMENT ASSEMBLY

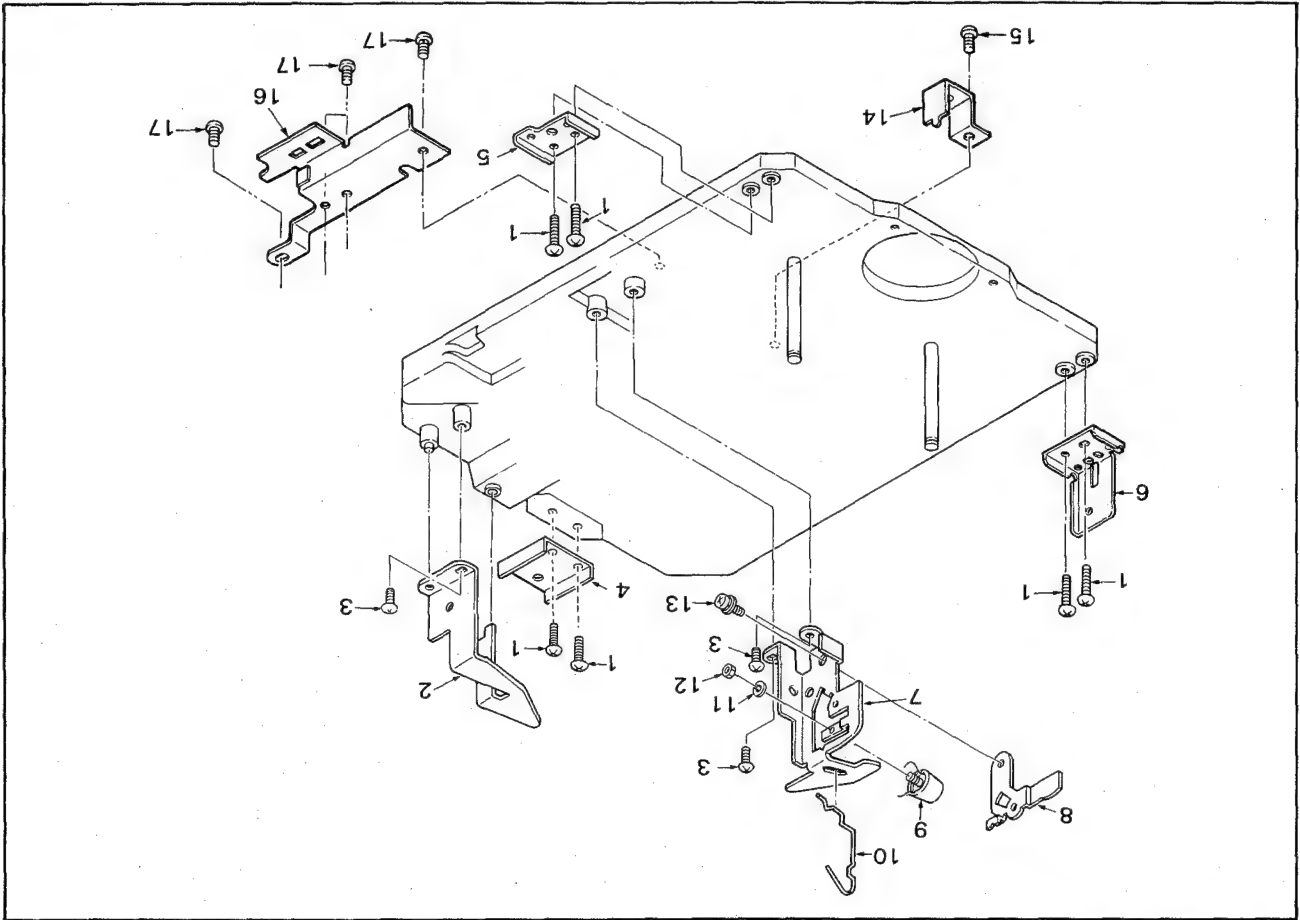


Key No.	Location No.	Part No.	Description
1	B501A		Screw, 3×8 mm
2	B508	70342092	Belt, Loading Cam
3	B504		Screw, 2.6×6 mm
4	B529	70351405	Spring, Lock Arm
5	B510		Spring, Ratchet
6	B519	70351402	Spring, Cam Arm
7	B527	70351403	Spring, Lock Arm A
8	B523	70351404	Spring, Lock Arm B
9	B502		LC Motor Bracket Assembly
10	B523	70351408	Spring, Reverse Prevention
11	B509	70145199	Cam Switch Assembly
12	B503	70322225	Motor Assembly, LC
13	B503A		Shield Assembly
14	B503C		Screw, 2.6×6 mm
15	B501		LC Drive Assembly
16	B122A		E-Ring, 3 mm
17	B122		Pinch Lock Lever

Key No.	Location No.	Part No.	Description
18	S656	70145168	Switch, Leaf
19	B126		Screw, 3×5 mm
20	B125		Screw, 3×5 mm Set
21	B120A		Screw, 3×8 mm
22	B121		Bracket Assembly, Pinch Lock
23	B151		Cam, Link
24	B152		Spring, Pinch Lock
25	B126		Bracket, Slack Switch
26	S656B		Screw, 2.6×6 mm
27	B123	70321513	Lever Assembly, Slack Switch
28	B124	70351483	Spring, Slack Lever
29	B123C	70394075	E-Ring, 2.3 mm

**NOTE:** Parts without Parts Number in Parts List are not available as replacement parts.

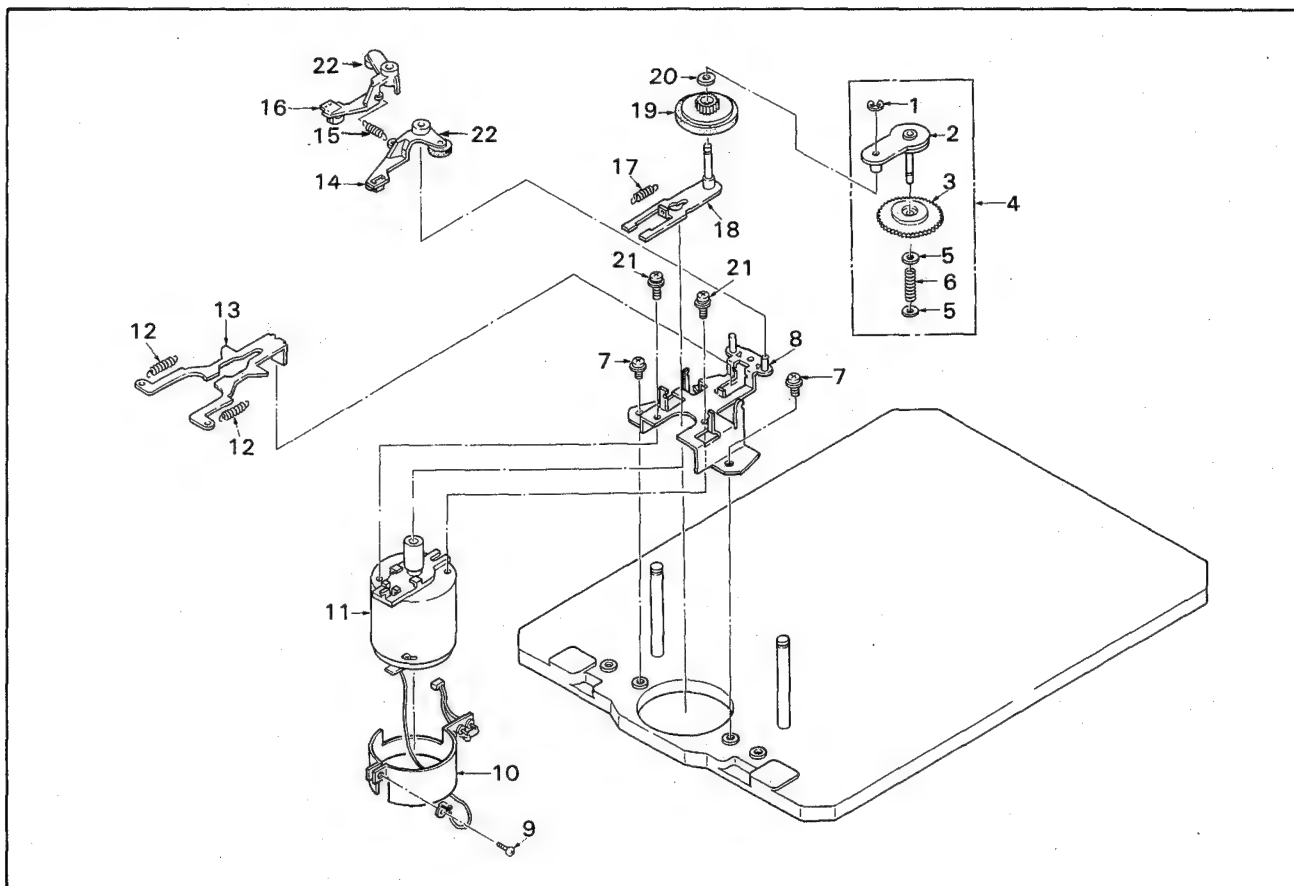
# 3-4. MAIN CHASSIS ASSEMBLY (RIGHT SIDE)



Key No.	Location No.	Part No.	Description
1	B605A		Screw, 3 x 10 mm
2	B181		Pinch Bracket
3	B181A		Screw, 3 x 8 mm
4	B605		Bracket, Back
5	B603		Bracket, Right
6	B607		Bracket, Left
7	K251		Opener Assembly
8	K253		Lever, Lever Adjust
9	L661	70212003	Coil, Sensing, 0.18 MHz
10	K257		Earth Wire
11	L661A	23056200	Washer, 2 mm
12	L661B	23742020	Nut, 2 mm
13	K254		Screw, 3 x 6 mm
14	B613		Bracket, Earth
15	B613A		Screw, 3 x 10 mm
16	V205		Shield Plate
17	V205A		Screw, 3 x 0.5 x 5 mm

**NOTE:** Parts without Parts Number in Parts List are not available as replacement parts.

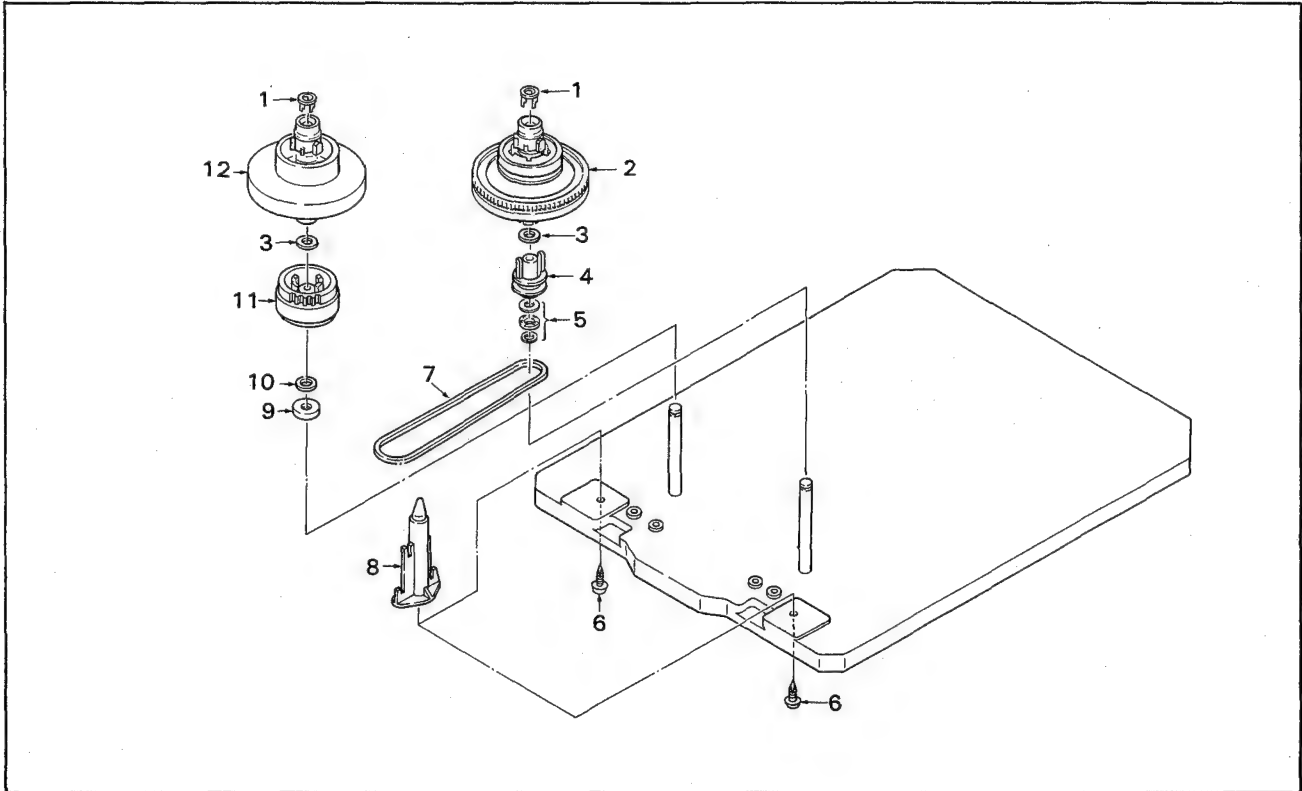
### 3-5. REEL MOTOR ASSEMBLY



Key No.	Location No.	Part No.	Description
1	K107	23002150	E-Ring, 1.5 mm
2	K106K		Idle Holder B Assembly
3	K106P		Idle Gear
4	K106H	70326467	Clutch Assembly, Idler
5	K106R	70396003	Polylider, 2.1×4.0×0.25 mm
6	K106Q	70351457	Spring, Clutch Torque
7	K101A		Screw, 3×8 mm
8	K102		Chassis Assembly, Reel Drive
9	K111C		Screw, 2.6×6 mm
			Tapping
10	K111		Shield Assembly, Reel Motor
11	K110	70326451	Motor Assembly, Reel Drive
12	K109		Spring, Slider
13	K103		Slider
14	K105	70326432	Brake Assembly, Take Up
15	K105E		Spring, Brake
16	K104	70326431	Brake Assembly, Supply
17	K108	70351458	Spring, Idler
18	K106A		Idle Holder Assembly
19	K106D	70326449	Gear Assembly, Idler Wheel
20	K106G		Washer, Thrust
21	K110E		Screw, 2.6×4 mm
22	K104B	70353101	Tire, Pause Lever

**NOTE:** Parts without Parts Number in Parts List are not available as replacement parts.

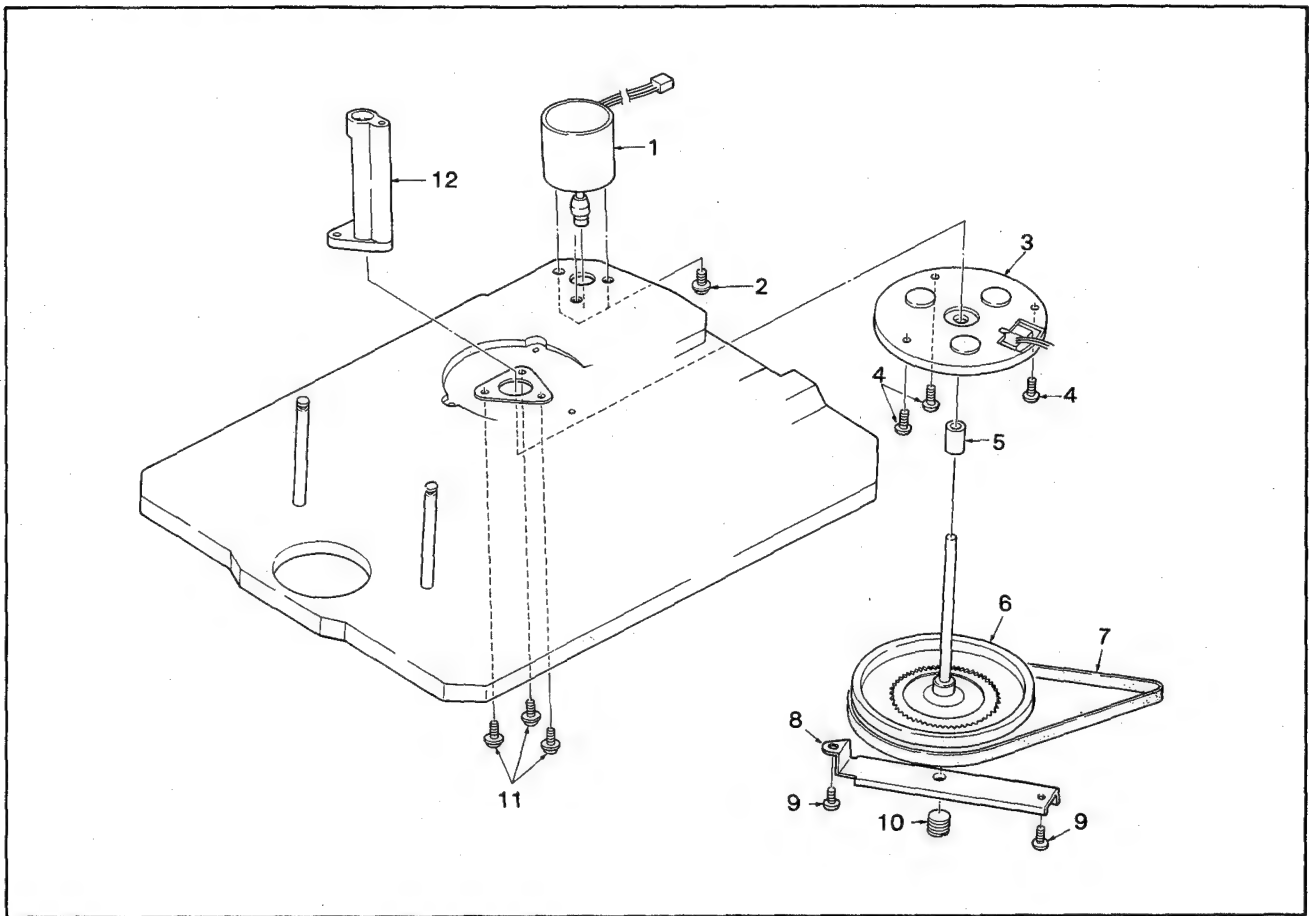
### 3-6. REEL CHASSIS ASSEMBLY



Key No.	Location No.	Part No.	Description
1	K173	70368001	Stopper, Reel Table
2	K171	70327058	Reel Table Assembly, Take-up
3	K154 } K175 }	70394048	Washer, 4×9×0.2 mm
4	K172		Pulley, Reel Table
5	K170	70348028	Bearing, Thrust
6	K267		Screw, 3×10 mm
7	K268	70342099	Belt, Counter
8	K266		Guide Post, Cassette
9	K150	70394081	Spacer, Reel Table
10	K153		Polyslider, 4.1×6.5×0.5 mm
11	K157		Brake, Wheel
12	K151	70331094	Reel Table Assembly, Supply

**NOTE:** Parts without Parts Number in Parts List are not available as replacement parts.

### 3-7. CAPSTAN DRIVE ASSEMBLY

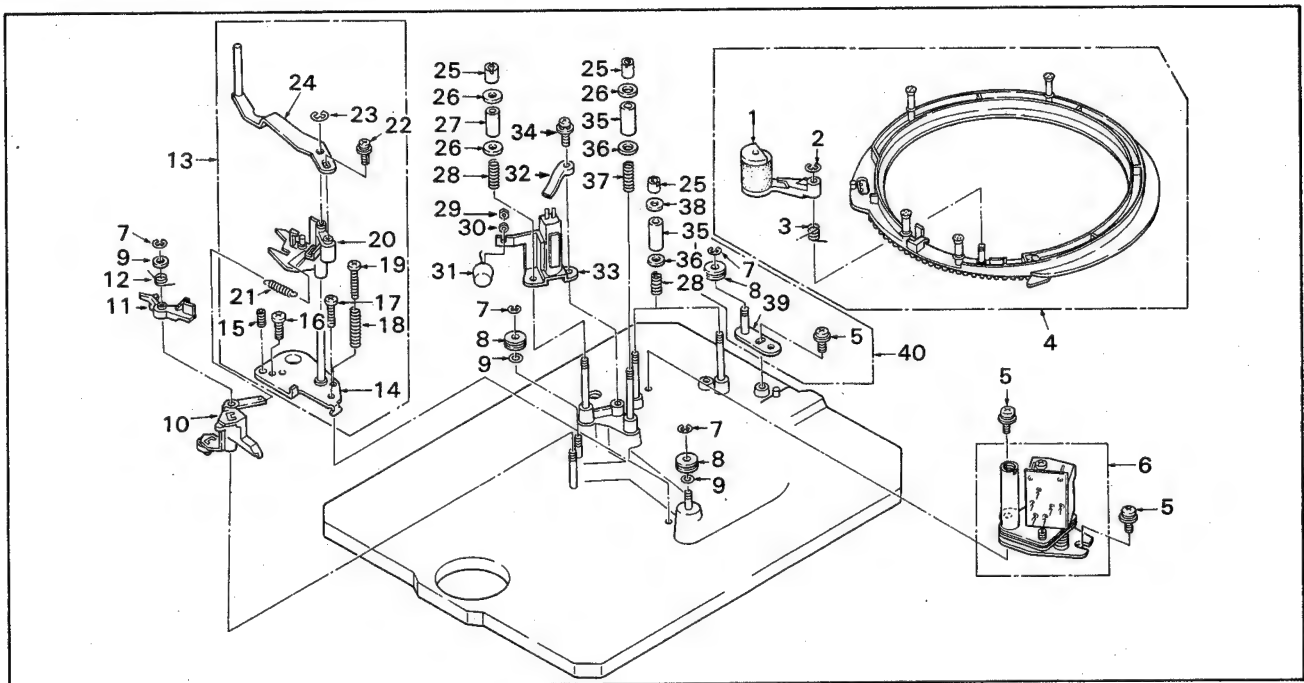


Key No.	Location No.	Part No.	Description
1	B309	70125107	Motor Assembly, DC, Capstan
2	B309A		Screw, 2.6×4.6 mm
3	L551	70321672	Coil Assembly
4	B301A		Screw, 3×0.5×6 mm
5	B304D	70368004	Spacer, Capstan
6	B304		Flywheel Assembly
7	B307	70342082	Belt, Flat, Capstan
8	B302		Bracket Assembly, Thrust Bearing
9	B302A		Screw, 3×8 mm
10	B302B		Bearing, Thrust
11	G270C		Screw, 3×0.5×6 mm
12	G270		Sleeve, Capstan

**NOTE:** Parts without Parts Number in Parts List are not available as replacement parts.



### 3-8. MAIN BASE ASSEMBLY

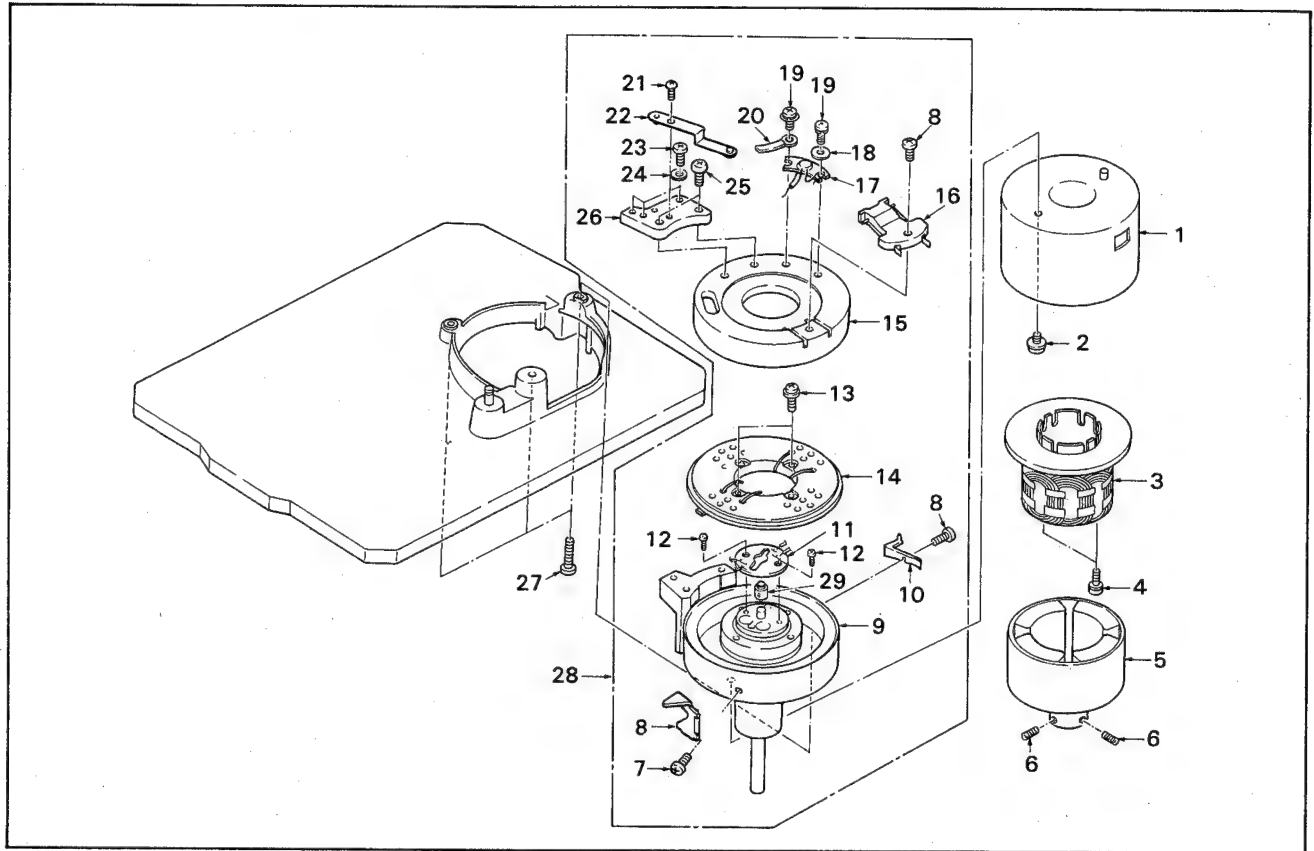


Key No.	Location No.	Part No.	Description
1	B404		Level Assembly, Pinch Roller
2	B408	23002200	E-Ring, 2 mm
3	B403	70351263	Spring, Pinch Roller
4	B401	70312083	Loading Disk Assembly
5	G202A		Screw, 3×8 mm
6	G202	70321557	Guide Assembly, Exit
7	G275E	70394075	E-Ring, 2.3 mm
8	G276		Roller, Disk Guide
9	B108A		Polyslider, 3.1×5.4×0.5 mm
10	B105	70321449	Tension Sub Arm Assembly
11	B107		Lever, Arm Shift
12	B108		Spring, Arm Shift Lever
13	B101		Tension Servo Assembly
14	B104		Tension Bracket Assembly
15	B104C		Screw, 3×6 mm
16	B101E		Screw, 3×0.5×5 mm
17	B101A		Screw, 3×0.5×10 mm
18	B101B		Spring, Adjust
19	B101C		Screw, 3×0.5×20 mm
20	B103		Tension Lever
21	B106	70351316	Spring, Tension

Key No.	Location No.	Part No.	Description
22	B102C		Screw, 3×10 mm, Tapping
23	B103A		E-Ring, 3 mm
24	B102	70321447	Tension Arm Assembly
25	G259		Nut
26	G256		Flange, First Guide
27	G251		Guide, Pole, First
28	G260		Spring, Tape Exit Guide
29	L662A		Nut, 2 mm
30	L662B		Washer, 2 mm
31	L662	70212003	Coil, Sensing, 0.18 mm
32	H032B		Lead Holder
33	H032	70183012	Head Assembly, Full Erase
34	H032A		Screw, 3×12 mm
35	G261		Guide Pole, Entrance
36	G263		Flange, Exit Guide, Lower
37	G253		Spring, Second Guide
38	G262		Flange, Exit Guide
39	G275A		Bracket, Roller Bracket
40	G275		Roller Assembly, Disk Guide

**NOTE:** Parts without Parts Number in Parts List are not available as replacement parts.

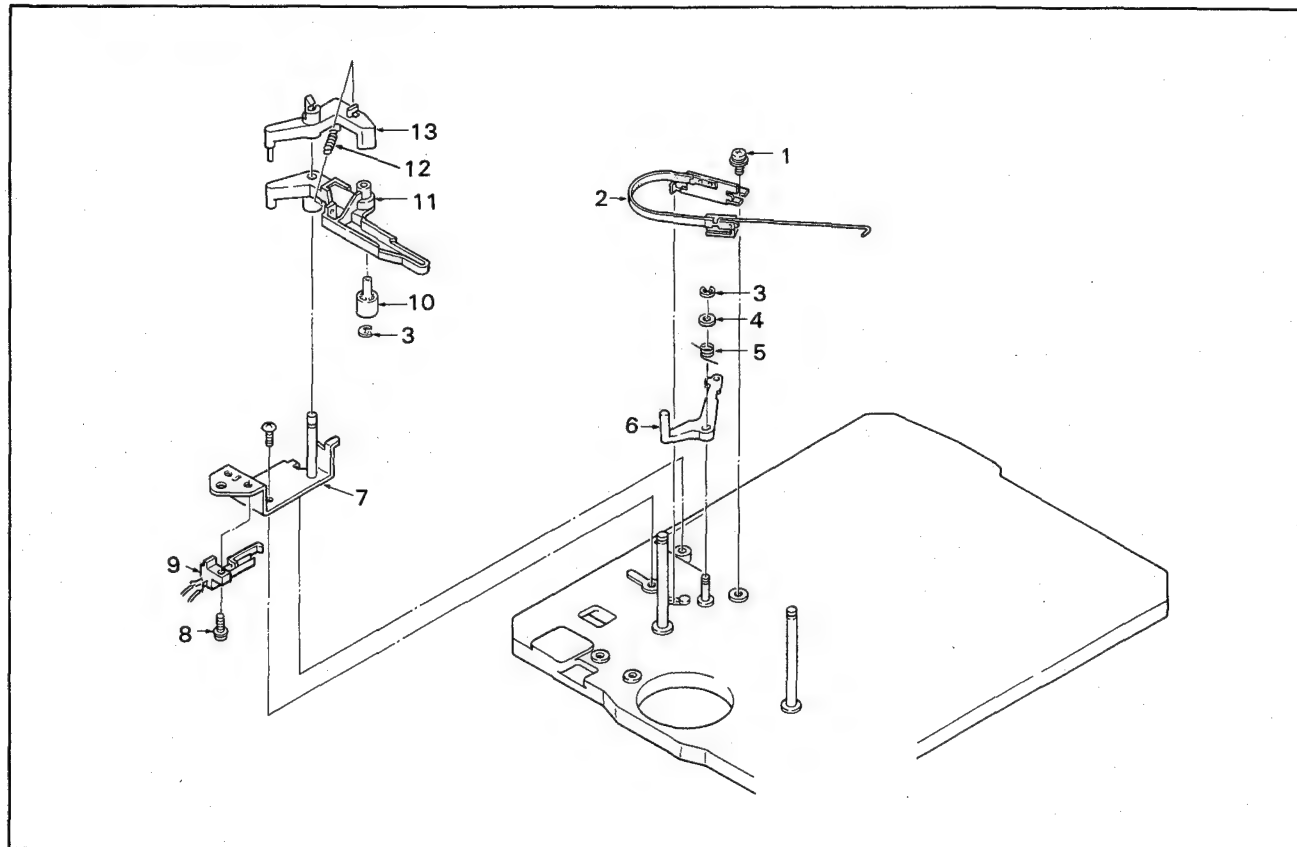
### 3-9. CYLINDER ASSEMBLY



Key No.	Location No.	Part No.	Description
1	G153		Shield, Case Assembly
2	G153A		Screw, 3×6 mm
3	G152	70125104	Starter
4	G152A		Screw, 2×5 mm
5	G151	70125103	Rotor Assembly
6	G151A		Screw, 4×6 mm
7	G137C		Screw, 3×0.5×6 mm
8	G137		Tape Holder B
9	G101	70321544	Lower Cylinder
10	G136		Tape Holder A
11	G110	70193220	PC Board Assembly, Relay
12	G110A		Screw, 2.6×5 mm
13	G120A	70391046	Screw, 3×8 mm, W/Washer
14	G120	70321542	Video Head Assembly
15	G131	70321343	Upper Cylinder
16	G132	70321232	Tape Holder Assembly
17	RL92	70213074	Dew Heater
18	RL92E		Washer
19	G132A		Screw, 3×8 mm
20	RL92C		Lead Holder
21	G133H		Screw, 2.6×4 mm
22	G133D	70321596	Spring, Brush
23	G133B		Screw, 3×0.5×10 mm
24	G133C		Washer, 3 mm
25	G133A		Screw, 4×8 mm
26	G133		Bracket
27	G001A		Screw, 3×10 mm
28	G011	70311144	Cylinder Assembly
29	G105E		Cap Assembly

**NOTE:** Parts without Parts Number in Parts List are not available as replacement parts.

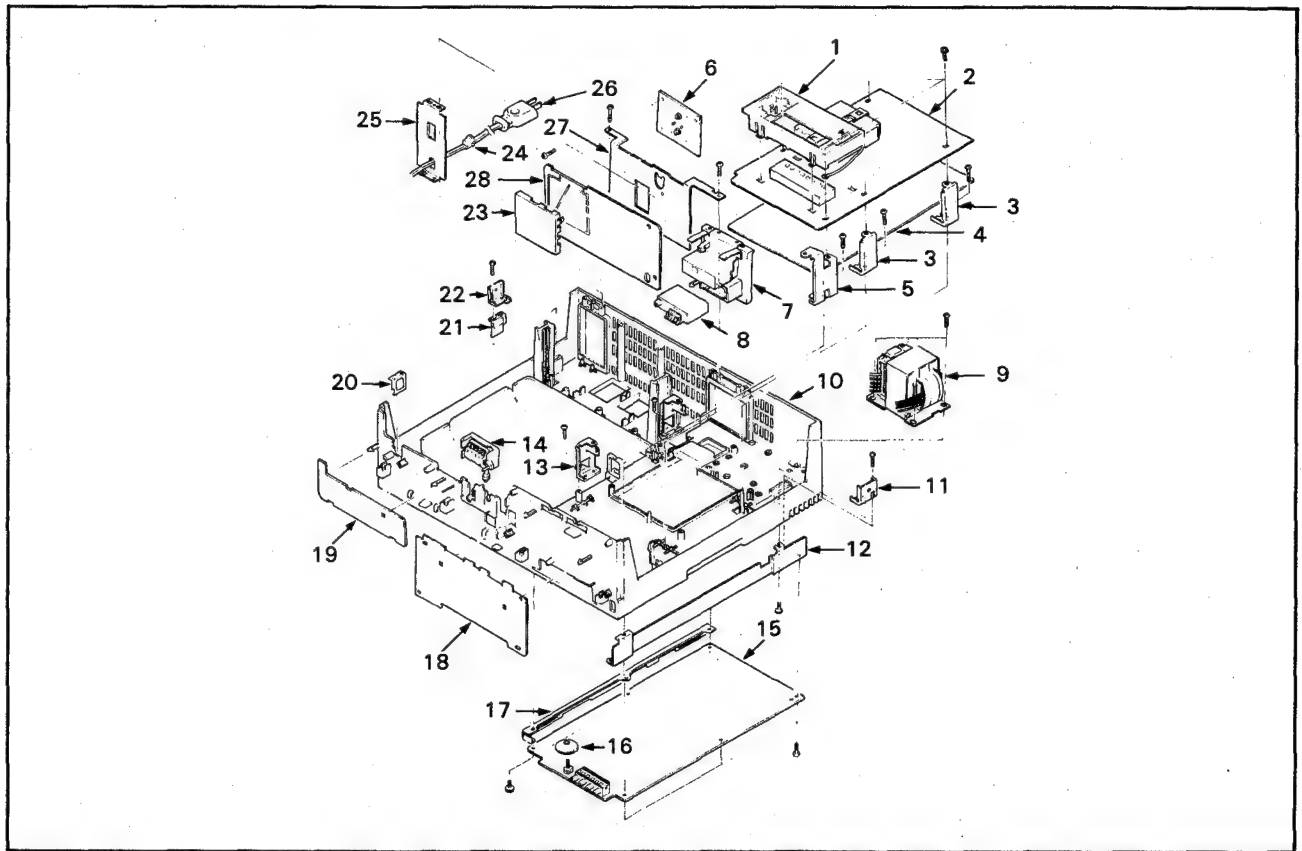
### 3-10. MAIN CHASSIS ASSEMBLY (LEFT SIDE)



Key No.	Location No.	Part No.	Description
1	B110J		Screw, 3×8 mm
2	B110	70321514	Band Brake Assembly
3	K264	70394075	E-Ring, 2.3 mm
4	K263		Washer
5	K262	70351415	Spring, Soft Brake
6	K261	70363187	Lever, Soft Brake
7	K202		Detect Bracket Assembly
8	K654A		Screw, 2.6×6 mm
9	S654	70145168	Switch, Leaf
10	K204		Roller Clutch Assembly
11	K203	70326456	Detect Arm Assembly
12	K208		Spring, Cassette Detector
13	K207		Lever, Unloading End Detector

**NOTE:** Parts without Parts Number in Parts List are not available as replacement parts.

### 3-11. CHASSIS ASSEMBLY

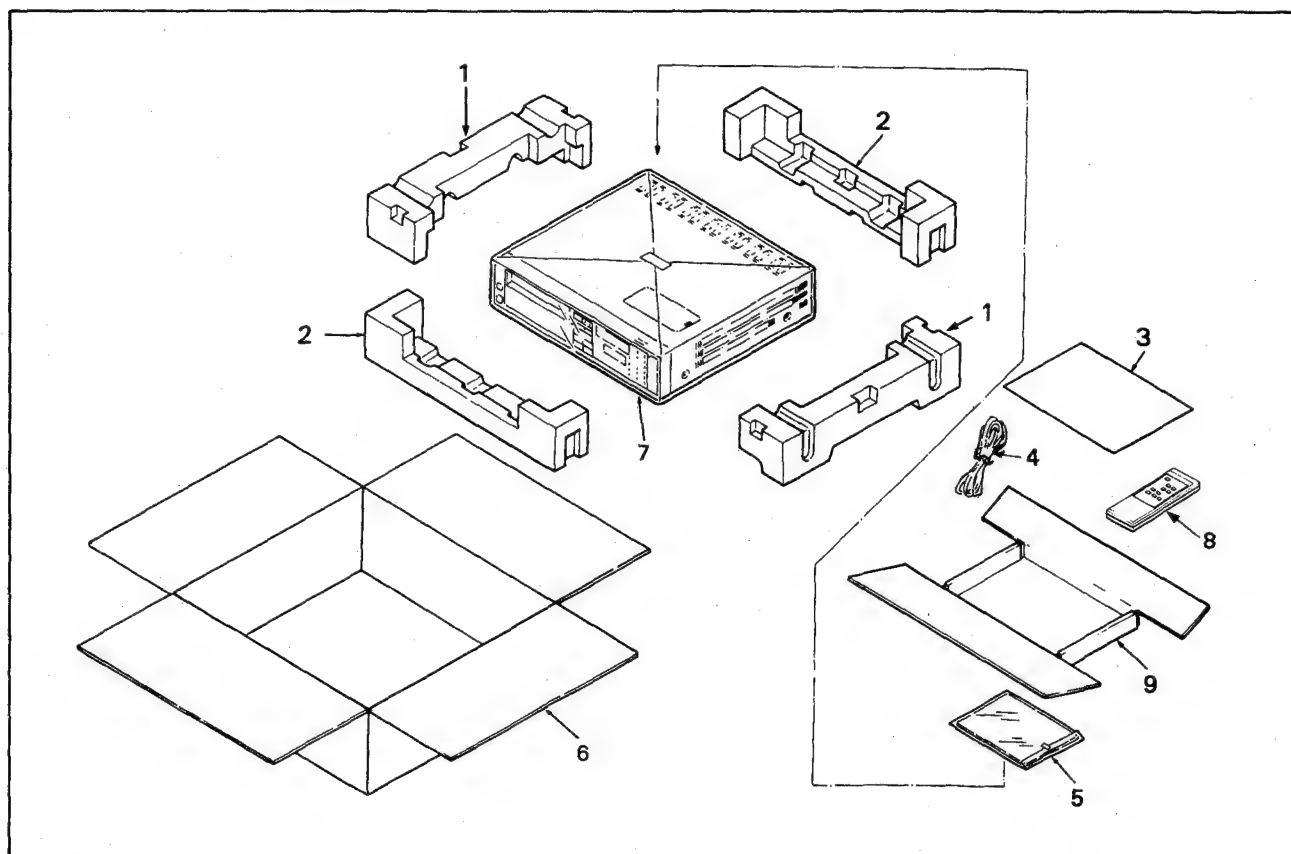


Key No.	Location No.	Part No.	Description
1	A104	70843058	Cover, Potentiometer
2	U001	70194010	PC Board, Assembly,
3	B614		PIF SELECTOR & POWER 2
4	U501	70191985	Bracket, PIF & SELECTOR, Right
5	B603		PC Board, Assembly, SERVO & LOGIC
6	V811		Bracket, Right
7	H003	70142054	Heat Sink, Power 2
8	H004	70123053	Terminal Board Antenna VT-615
9	T802	70213079	RF Unit MB5636T
10	B601		Transformer, POWER VPW31S
11	B611		Chassis Frame Assembly
12	B612		Bracket
13	B615		Plate, Shield
14	B609	70141023	Bracket, Pip & Selector Left Counter

Key No.	Location No.	Part No.	Description
15	U201	70191943	PC Board, Assembly, VIDEO & AUDIO
16	R550A	70862046	Knob, Tracking
17	V201		Retainer, Video & Audio
18	UX01	70191986	PC Board, Assembly
19	UX02	70194011	TIMER & LOGIC CONTROL
20	B606		PC Board, Assembly
21	B602		REMOTE CONTROL
22	B604		SWITCH
23	B616		Plate, Spring (B)
24	P801A	70846044	Plate, Spring (A)
25	V802		Bracket, RE
26	P801	70168060	Cover, Power
27	V811B		Holder, Power Cord
28	U801	70191945	Bracket, Power in Holder
			Power Cord
			Plate, Shield
			PC Board, Assembly, POWER

**NOTE:** Parts without Parts Number in Parts List are not available as replacement parts.

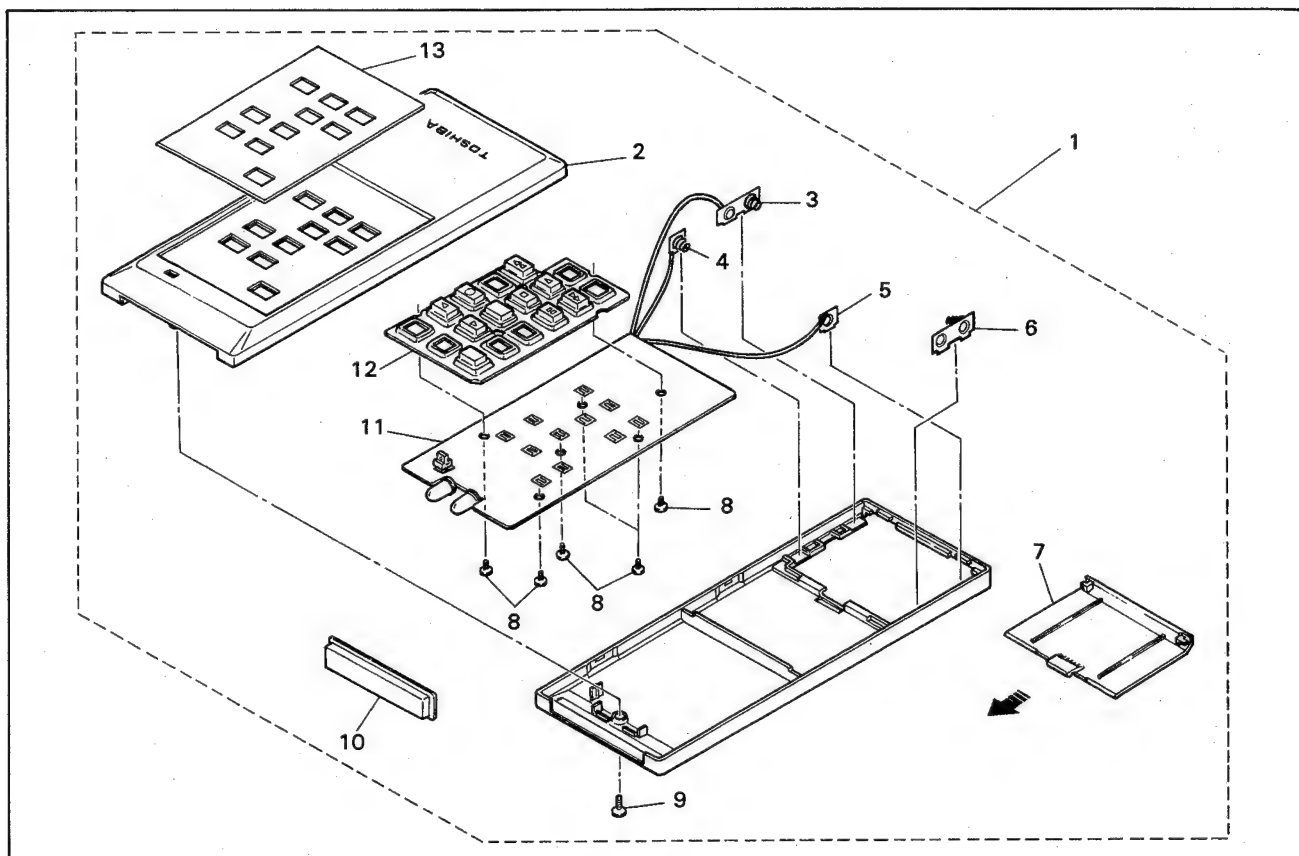
## 4-12. PACKING ASSEMBLY



Key No.	Location No.	Part No.	Description
1	A702	70921102	Packing, TOP
2	A703	70921098	Packing, Bottom
3	Y102	70942100	Sheet, Caution
4	Y104	70168035	PAL/SECAM Type Cable
5	Y101	70941342	Owners Manual
	Y103	70942265	Quick Reference
6	A701	70913278	Carton Box
7	A705		Sheet, Cover
8	Y116	70148072	W/L Remote Transmitter
9	A707	70914913	Tray

**NOTE:** Parts without Parts Number in Parts List are not available as replacement parts.

### 3-13. REMOTE TRANSMITTER ASSEMBLY



Key No.	Location No.	Part No.	Description
1	Y116	70148072	W/L Remote Transmitter
2	AT01		Cover, Top
3	AT01E		Battery Contact D
4	AT01D		Battery Contact C
5	AT01B		Battery Contact A
6	AT01C		Battery Contact B
7	AT03	70862165	Cover, Battery B
8	AT01A		Screw, M1.7 × 3.4 mm
9	AT02A		Screw, 2 × 8 mm
10	AT04		Filter
11	UT01		PC Board Ass'y W/L Remote
12	ST01		Rubber Sheet Switch
13	AT05		Decoration Plate

**NOTE:** Parts without Parts Number in Parts List are not available as replacement parts.

# SECTION 4. ELECTRICAL PARTS LIST

ABBREVIATIONS: Capacitors..... CD: Ceramic Disk, PF: Plastic Film, EL: Electrolytic.  
Resistors..... CF: Carbon Film, CC: Carbon Composition, MF: Metal Film,  
OMF: Oxide Metal Film, VR: Variable Resistors.

(All CD and PF capacitors are  $\pm 5\%$ , 50V and all resistor,  $\pm 5\%$ , 1/8W unless otherwise.)

**NOTE:** Many electrical and mechanical parts in this chassis have special safety-related characteristics. The characteristics are often passed unnoticed by a visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual and its supplements, electrical components having such features are identified by  $\Delta$  mark in the schematic diagram. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire or other hazards.

LOCATION NUMBER	PART NUMBER	DESCRIPTION	LOCATION NUMBER	PART NUMBER	DESCRIPTION
<b>CAPACITORS</b>					
<b>U001 PIF. SELECTOR POWER 2 PW UNIT 70194010</b>			C125	24436471	CD, 470pF
C001, C002	24232103	CD, 0.01 $\mu$ F, +80%, -20%	C126	24636010	EL, 1 $\mu$ F, 50V
C003, C004			C127	24436241	CD, 240pF
C005	24232102	CD, 1000pF, +80%, -20%	C128	24436560	CD, 56pF
C006	24636478	EL, 0.47 $\mu$ F, 50V	C129	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C007, C008	24436020	CD, 2pF, $\pm 0.25\%$	C201	24633220	EL, 22 $\mu$ F, 16V
C009	24436120	CD, 12pF	C203	24436821	CD, 820pF
C010	24633470	EL, 47 $\mu$ F, 16V	C204	24633100	EL, 10 $\mu$ F, 16V
C011	24232103	CD, 0.01 $\mu$ F, +80%, -20%	C205	24636010	EL, 1 $\mu$ F, 50V
C012, C013	24636339	EL, 3.3 $\mu$ F, 50V	C206	24632220	EL, 22 $\mu$ F, 10V
C014	24636479	EL, 4.7 $\mu$ F, 50V	C207	24436181	CD, 180pF
C015	24633471	EL, 470 $\mu$ F, 16V	C208	24436150	CD, 15pF
C016, C017	24436470	CD, 47pF	C209	24353121	CD, 120pF
C018	24232103	CD, 0.01 $\mu$ F, +80%, -20%	C210	24436331	CD, 330pF
C019	24636100	EL, 10 $\mu$ F, 50V	C211, C212	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C020	24340360	CD, 36pF	C213	24632470	EL, 47 $\mu$ F, 10V
C021	71592682	PF, 6800pF, $\pm 10\%$	C214	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C022	24636100	EL, 10 $\mu$ F, 50V	C215	24632470	EL, 47 $\mu$ F, 10V
C023	24232103	CD, 0.01 $\mu$ F, +80%, -20%	C216	24232103	CD, 0.01 $\mu$ F, +80%, -20%
<b>U201 VIDEO &amp; AUDIO PW UNIT 70191943</b>			C217	24436391	CD, 390pF
C101	24232103	CD, 0.01 $\mu$ F, +80%, -20%	C218	24436151	CD, 150pF
C103	24633470	EL, 47 $\mu$ F, 16V	C219	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C104	24232103	CD, 0.01 $\mu$ F, +80%, -20%	C220	71591473	PF, 0.047 $\mu$ F
C107	24636010	EL, 1 $\mu$ F, 50V	C221	24632220	EL, 22 $\mu$ F, 10V
C108	24232103	CD, 0.01 $\mu$ F, +80%, -20%	C222, C223	24538104	PF, 0.1 $\mu$ F
C109	24636010	EL, 1 $\mu$ F, 50V	C224	24636478	EL, 0.47 $\mu$ F, 50V
C110	24232103	CD, 0.01 $\mu$ F, +80%, -20%	C225	24436390	CD, 39pF
C111	24436101	CD, 100pF	C226	24633100	EL, 10 $\mu$ F, 16V
C112	24232103	CD, 0.01 $\mu$ F, +80%, -20%	C227	24633470	EL, 47 $\mu$ F, 16V
C113	24632220	EL, 22 $\mu$ F, 10V	C228	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C114	24232103	CD, 0.01 $\mu$ F, +80%, -20%	C229	24632101	EL, 100 $\mu$ F, 10V
C115	24632470	EL, 47 $\mu$ F, 10V	C230	24632470	EL, 47 $\mu$ F, 10V
C116	24232103	CD, 0.01 $\mu$ F, +80%, -20%	C231	24632101	EL, 100 $\mu$ F, 10V
C117	24436331	CD, 330pF	C232	24631471	EL, 470 $\mu$ F, 6.3V
C118, C119	24232103	CD, 0.01 $\mu$ F, +80%, -20%	C233	24436510	CD, 51pF
C120	24632220	EL, 22 $\mu$ F, 10V	C234	24212102	CD, 1000pF, $\pm 10\%$
C121, C122	24232103	CD, 0.01 $\mu$ F, +80%, -20%	C235	24538274	PF, 0.27 $\mu$ F
C123, C124			C236	24632470	EL, 47 $\mu$ F, 10V
			C237	71591223	PF, 0.022 $\mu$ F
			C238	24632220	EL, 22 $\mu$ F, 10V

LOCATION NUMBER	PART NUMBER	DESCRIPTION
C239	24436680	CD, 68pF
C240	24436820	CD, 82pF
C241	24631221	EL, 220 $\mu$ F, 6.3V
C242	24632220	EL, 22 $\mu$ F, 10V
C243	24436390	CD, 39pF
C244	24436821	CD, 820pF
C245	24436181	CD, 180pF
C246	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C247	24436271	CD, 270pF
C248	24633470	EL, 47 $\mu$ F, 16V
C249	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C261	24436150	CD, 15pF
C262	24633100	EL, 10 $\mu$ F, 16V
C267	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C301	24636010	EL, 1 $\mu$ F, 50V
C302	24598511	PF, 510pF
C304	24436201	CD, 200pF
C305	24636478	EL, 0.47 $\mu$ F, 50V
C306	71591122	PF, 1200pF
C307	24436331	CD, 330pF
C308	71591393	PF, 0.039 $\mu$ F
C309	24436511	CD, 510pF
C311	71591152	PF, 1500pF
C312	71591122	PF, 1200pF
C313	24632470	EL, 47 $\mu$ F, 10V
C315	24632220	EL, 22 $\mu$ F, 10V
C401, C402	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C403	71591473	PF, 0.047 $\mu$ F
C404	24436101	CD, 100pF
C405	24632470	EL, 47 $\mu$ F, 10V
C407	24436200	CD, 20pF
C408	24436101	CD, 100pF
C409	24436331	CD, 330pF
C410	24436101	CD, 100pF
C411	24636010	EL, 1 $\mu$ F, 50V
C412	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C413	24436560	CD, 56pF
C414	24232223	CD, 0.022 $\mu$ F, +80%, -20%
C415	24636479	EL, 4.7 $\mu$ F, 50V
C416	71591392	PF, 3900pF
C417	24636010	EL, 1 $\mu$ F, 50V
C418	24356390	CD, 39pF
C419	24232223	CD, 0.022 $\mu$ F, +80%, -20%
C420	71591223	PF, 0.022 $\mu$ F
C421, C422	24636010	EL, 1 $\mu$ F, 50V
C423	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C424	24436101	CD, 100pF
C425, C426	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C427	24634100	EL, 10 $\mu$ F, 25V
C428	24636010	EL, 1 $\mu$ F, 50V
C429	24436101	CD, 100pF
C430	24634100	EL, 10 $\mu$ F, 25V
C431	24436560	CD, 56pF

LOCATION NUMBER	PART NUMBER	DESCRIPTION
C432	24436241	CD, 240pF
C433	71591104	PF, 0.1 $\mu$ F
C434	24353470	CD, 47pF
C435	24353160	CD, 16pF
C436, C437	24353680	CD, 68pF
C438	24632470	EL, 47 $\mu$ F, 10V
C439	24232223	CD, 0.022 $\mu$ F, +80%, -20%
C440	24632470	EL, 47 $\mu$ F, 10V
C442	24436620	CD, 62pF
C443	24436360	CD, 36pF
C444, C445	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C446		
C447	24436560	CD, 56pF
C448	24436511	CD, 510pF
C449	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C451	70417014	Trimmer, 8P
C461, C462	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C464	71591122	PF, 1200pF
C465	24212102	CD, 1000pF, $\pm$ 10%
C466	24636339	EL, 3.3 $\mu$ F, 50V
C467	24212332	CD, 3300pF, $\pm$ 10%
C468	24436680	CD, 68pF
C469, C470	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C471		
C472	24633100	EL, 10 $\mu$ F, 16V
C473	24436331	CD, 330pF
<b>U501 SERVO &amp; LOGIC PW UNIT 70191985</b>		
C501, C502	24632470	EL, 47 $\mu$ F, 10V
C503	24436101	CD, 100pF
C507	24436221	CD, 220pF
C508, C509	71591562	PF, 5600pF
C510, C511	71591272	PF, 2700pF
C512	71591393	PF, 0.039 $\mu$ F
C513	24636010	EL, 1 $\mu$ F, 50V
C514, C515	24633220	EL, 22 $\mu$ F, 16V
C516	24633100	EL, 10 $\mu$ F, 16V
C517	24633220	EL, 22 $\mu$ F, 16V
C518, C519	71591103	PF, 0.01 $\mu$ F
C520, C521	24340471	CD, 470pF
C522	24353390	CD, 39pF
C523	71591103	PF, 0.01 $\mu$ F
C524	24356151	CD, 150pF
C525	24356300	CD, 30pF
C526, C527	71591103	PF, 0.01 $\mu$ F
C528	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C529	24633220	EL, 22 $\mu$ F, 16V
C530	24636229	EL, 2.2 $\mu$ F, 50V
C531	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C532, C533	24632470	EL, 47 $\mu$ F, 10V
C534	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C535	24633100	EL, 10 $\mu$ F, 16V
C536	71591103	PF, 0.01 $\mu$ F



LOCATION NUMBER	PART NUMBER	DESCRIPTION
C537	24636229	EL, 2.2 $\mu$ F, 50V
C538	71591103	PF, 0.01 $\mu$ F
C539	71591102	PF, 1000pF
C540	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C541	24085023	EL, 10 $\mu$ F, 16V
C542	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C601	24632470	EL, 47 $\mu$ F, 10V
C602	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C603	24632101	EL, 100 $\mu$ F, 10V
C604	24632470	EL, 47 $\mu$ F, 10V
C605	24634101	EL, 100 $\mu$ F, 25V
C607	24436101	CD, 100pF
C608	24436101	CD, 100pF
C610	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C611	24867392	PF, 3900pF
C612	71593223	PF, 0.022 $\mu$ F
C613	24867392	PF, 3900pF
C614	71593223	PF, 0.022 $\mu$ F
C615	24232223	CD, 0.022 $\mu$ F, +80%, -20%
C616	24632220	EL, 22 $\mu$ F, 10V
C617	24636229	EL, 2.2 $\mu$ F, 50V
C618	24632470	EL, 47 $\mu$ F, 10V
C619, C620	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C630	24632220	EL, 22 $\mu$ F, 10V
C631	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C633	71592333	PF, 0.033 $\mu$ F, $\pm$ 10%
C634	24636229	EL, 2.2 $\mu$ F, 50V
C640	24632470	EL, 47 $\mu$ F, 10V
C642	71591682	PF, 6800pF
C643	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C644	24632470	EL, 47 $\mu$ F, 10V
C645	24212221	CD, 220pF, $\pm$ 10%
C646	71592272	PF, 2700pF, $\pm$ 10%
C647, C648	24436101	CD, 100pF
C649	24632470	EL, 47 $\mu$ F, 10V
C650	24632220	EL, 22 $\mu$ F, 10V
C661	24633100	EL, 10 $\mu$ F, 16V
<b>U201 VIDEO &amp; AUDIO PW UNIT 70194008</b>		
C701	24633100	EL, 10 $\mu$ F, 16V
C702	24212152	CD, 1500pF, $\pm$ 10%
C703	24633101	EL, 100 $\mu$ F, 16V
C704	24633100	EL, 10 $\mu$ F, 16V
C705	24432101	CD, 100pF, $\pm$ 10%
C706	71591273	PF, 0.027 $\mu$ F
C708	24632101	EL, 100 $\mu$ F, 10V
C709	24636478	EL, 0.47 $\mu$ F, 50V
C710	24633100	EL, 10 $\mu$ F, 16V
C711	24635479	EL, 4.7 $\mu$ F, 35V
C712	24633220	EL, 22 $\mu$ F, 16V
C713	24212562	CD, 5600pF, $\pm$ 10%
C714	24636478	EL, 0.47 $\mu$ F, 50V
C715	24212102	CD, 1000pF, $\pm$ 10%
C716	24635479	EL, 4.7 $\mu$ F, 35V
C717	24432101	CD, 100pF, $\pm$ 10%

LOCATION NUMBER	PART NUMBER	DESCRIPTION
C718	24635339	EL, 3.3 $\mu$ F, 35V
C719	24212821	CD, 820pF, $\pm$ 10%
C720, C721	24633100	EL, 10 $\mu$ F, 16V
C722	24633221	EL, 220 $\mu$ F, 16V
C724	24635479	EL, 4.7 $\mu$ F, 35V
C725	24212102	CD, 1000pF, $\pm$ 10%
C726	24867682	PF, 6800pF
C727	24633470	EL, 47 $\mu$ F, 16V
C728	24212472	CD, 4700pF, $\pm$ 10%
C729	24214221	CD, 220pF, $\pm$ 10%, 500V
C730	24538124	PF, 0.12 $\mu$ F
C731	24232103	CD, 0.01 $\mu$ F, +80%, -20%
<b>U801 POWER 1 PW UNIT 70191945</b>		
C801	24098011	MF, 0.1 $\mu$ F, $\pm$ 20%, AC 250V
C802, C803	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C804, C805		
C806	70415069	EL, 6800 $\mu$ F, 35V
C807	24634220	EL, 22 $\mu$ F, 25V
C808	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C809	24633100	EL, 10 $\mu$ F, 16V
C810	24634100	EL, 10 $\mu$ F, 25V
C811	24633100	EL, 10 $\mu$ F, 16V
C812	24633102	EL, 1000 $\mu$ F, 16V
C813	24633222	EL, 2200 $\mu$ F, 16V
C814	24633100	EL, 10 $\mu$ F, 16V
C815, C816	24641100	EL, 10 $\mu$ F, 100V
C817, C818	71591104	PF, 0.1 $\mu$ F
<b>U001 PIF. SELECTOR POWER 2 PW UNIT 70194010</b>		
C861	24641101	EL, 100 $\mu$ F, 100V
C863, C864	24641100	EL, 10 $\mu$ F, 100V
C865	24641101	EL, 100 $\mu$ F, 100V
C866	24636101	EL, 100 $\mu$ F, 50V
CA01	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CA02	24636100	EL, 10 $\mu$ F, 50V
CA03, CA04	24636478	EL, 0.47 $\mu$ F, 50V
CA05	24636229	EL, 2.2 $\mu$ F, 50V
CA06, CA07	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CA08		
CA09	71591333	PF, 0.033 $\mu$ F
CA10	24633220	EL, 22 $\mu$ F, 16V
CA11	71591103	PF, 0.01 $\mu$ F
<b>UX02 REMOTE CONTROL SWITCH PW UNIT 70194011</b>		
CL12	24632470	EL, 47 $\mu$ F, 10V
<b>UX01 TIMER &amp; LOGIC CONTROL PW UNIT 70191986</b>		
CR01	70435229	EL, 2.2 $\mu$ F, 50V
CR02	24212821	CD, 820pF, $\pm$ 10%
CR03	70435478	EL, 0.47 $\mu$ F, 50V
CR04	24212681	CD, 680pF, $\pm$ 10%
CR05	24634100	EL, 10 $\mu$ F, 25V

LOCATION NUMBER	PART NUMBER	DESCRIPTION
<b>UX02 REMOTE CONTROL SWITCH PW UNIT 70194011</b>		
CR62, CR63	24212102	CD, 1000pF, $\pm 10\%$
CR64	24538104	PF, 0.1 $\mu$ F
CR65	24598102	PF, 1000pF
CR66	24538223	PF, 0.022 $\mu$ F
CR67	24636010	EL, 1 $\mu$ F, 50V
<b>UX01 TIMER &amp; LOGIC CONTROL PW UNIT 70191986</b>		
CX01	24632470	EL, 47 $\mu$ F, 10V
CX02, CX03	24436101	CD, 100pF
CX04	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CX05	24232223	CD, 0.022 $\mu$ F, +80%, -20%
CX06	24232103	CD, 0.01 $\mu$ F, +80%, -20%
<b>UX02 REMOTE CONTROL SWITCH PW UNIT 70194011</b>		
CX81	24634470	EL, 47 $\mu$ F, 25V
CX82	24633100	EL, 10 $\mu$ F, 16V
CX83	24632331	EL, 330 $\mu$ F, 10V
CX84	24232103	CD, 0.01 $\mu$ F, +80%, -20%
<b>RESISTORS</b>		
<b>U001 PIF. SELECTOR POWER 2 PW UNIT 70194010</b>		
R001	24360101	CF, 100 ohm
R002	24360301	CF, 300 ohm
R003	24360562	CF, 5.6k ohm
R004	24360471	CF, 470 ohm
R005	24360102	CF, 1k ohm
R006	24360270	CF, 27 ohm
R007	24360821	CF, 820 ohm
R008	24360392	CF, 3.9k ohm
R009	24360683	CF, 68k ohm
R010	24360221	CF, 220 ohm
R011	24360824	CF, 820k ohm
R012	24360152	CF, 1.5k ohm
R013	24360511	CF, 510 ohm
R014	24360681	CF, 680 ohm
R015	24360102	CF, 1k ohm
R016	24941821	CC, 820 ohm, 1/4W
R017, R018	24360102	CF, 1k ohm
R019	24360153	CF, 15k ohm
R020	24360242	CF, 2.4k ohm
R021	24360182	CF, 1.8k ohm
R022, R023	24360104	CF, 100k ohm
R024	24360474	CF, 470k ohm
R025	24360103	CF, 10k ohm
R026	24360563	CF, 56k ohm
R027	24360103	CF, 10k ohm
R028	24360563	CF, 56k ohm
R029	24360103	CF, 10k ohm
R030	24360363	CF, 36k ohm
R031	24360154	CF, 150k ohm

LOCATION NUMBER	PART NUMBER	DESCRIPTION
R032	24360103	CF, 10k ohm
R033	24360563	CF, 56k ohm
R051	24061149	VR, 330k ohm, 0.15W
R052	24061138	VR, 4.7k ohm, 0.15W
R064	24360105	CF, 1M ohm
<b>U201 VIDEO &amp; AUDIO PW UNIT 70191943</b>		
R101, R102	24360620	CF, 62 ohm
R103	24360681	CF, 680 ohm
R104	24360301	CF, 300 ohm
R105	24360472	CF, 4.7k ohm
R106	24360102	CF, 1k ohm
R107	24360133	CF, 13k ohm
R108	24360393	CF, 39k ohm
R109	24360471	CF, 470 ohm
R110	24360332	CF, 3.3k ohm
R111, R112	24360433	CF, 43k ohm
R113	24360102	CF, 1k ohm
R114, R115	24360104	CF, 100k ohm
R116, R117		
R118, R119	24360182	CF, 1.8k ohm
R120	24360332	CF, 3.3k ohm
R121, R122	24360152	CF, 1.5k ohm
R123	24360471	CF, 470 ohm
R124	24360103	CF, 10k ohm
R125	24360333	CF, 33k ohm
R126	24360122	CF, 1.2k ohm
R127	24360132	CF, 1.3k ohm
R128	24360821	CF, 820 ohm
R129, R130	24360102	CF, 1k ohm
R131	24360681	CF, 680 ohm
R132	24360391	CF, 390 ohm
R133	24360821	CF, 820 ohm
R134	24360223	CF, 22k ohm
R135	24360103	CF, 10k ohm
R136	24360681	CF, 680 ohm
R137	24360331	CF, 330 ohm
R138, R139	24360103	CF, 10k ohm
R140	24360223	CF, 22k ohm
R141	24360102	CF, 1k ohm
R142	24360243	CF, 24k ohm
R143	24360153	CF, 15k ohm
R144	24360152	CF, 1.5k ohm
R145	24360101	CF, 100 ohm
R151, R152	70421198	VR, 2.2k ohm, 0.1W
R201	24360274	CF, 270k ohm
R202	24360152	CF, 1.5k ohm
R203	24360121	CF, 120 ohm
R204	24360622	CF, 6.2k ohm
R205	24360271	CF, 270 ohm
R206	24360152	CF, 1.5k ohm
R207	24360182	CF, 1.8k ohm
R208	24360160	CF, 16 ohm
R209	24360153	CF, 15k ohm
R210	24378223	CF, 22k ohm, $\pm 2\%$

LOCATION NUMBER	PART NUMBER	DESCRIPTION
R211	24360302	CF, 3k ohm
R212	24378912	CF, 9.1k ohm, $\pm 2\%$
R213	24378392	CF, 3.9k ohm, $\pm 2\%$
R214	24378242	CF, 2.4k ohm, $\pm 2\%$
R217, R218	24360273	CF, 27k ohm
R219	24360274	CF, 270k ohm
R220	24360101	CF, 100 ohm
R221	24360821	CF, 820 ohm
R222	24378241	CF, 240 ohm, $\pm 2\%$
R223	24360302	CF, 3k ohm
R224	24360471	CF, 470 ohm
R225	24360390	CF, 39 ohm
R226	24360182	CF, 1.8k ohm
R227	24360820	CF, 82 ohm
R228	24360390	CF, 39 ohm
R229	24360182	CF, 1.8k ohm
R230	24360243	CF, 24k ohm
R231	24360182	CF, 1.8k ohm
R232	24360274	CF, 270k ohm
R233	24360332	CF, 3.3k ohm
R234	24360102	CF, 1k ohm
R235	24360621	CF, 620 ohm
R236, R237	24378102	CF, 1k ohm, $\pm 2\%$
R238, R239	24360102	CF, 1k ohm
R240	24360622	CF, 6.2k ohm
R241	24360103	CF, 10k ohm
R242	24360472	CF, 4.7k ohm
R243	24360471	CF, 470 ohm
R244	24360102	CF, 1k ohm
R245	24360562	CF, 5.6k ohm
R246	24360101	CF, 100 ohm
R247	24360151	CF, 150 ohm
R248	24378680	CF, 68 ohm, $\pm 2\%$
R249	24378910	CF, 91 ohm, $\pm 2\%$
R251	70421199	VR, 3.3k ohm, 0.1W
R252	70421198	VR, 2.2k ohm, 0.1W
R253	70421199	VR, 3.3k ohm, 0.1W
R261	24360390	CF, 39 ohm
R262	24360222	CF, 2.2k ohm
R264	24360620	CF, 62 ohm
R265	24360203	CF, 20k ohm
R266	24360473	CF, 47k ohm
R267	24360914	CF, 910k ohm
R268	24360102	CF, 1k ohm
R269	24360473	CF, 47k ohm
R270	24360243	CF, 24k ohm
R271	24360332	CF, 3.3k ohm
R272	24360333	CF, 33k ohm
R273	24360133	CF, 13k ohm
R274, R275	24360561	CF, 560 ohm
R276	24360182	CF, 1.8k ohm
R277	24360102	CF, 1k ohm
R278	24360561	CF, 560 ohm
R279	24360911	CF, 910 ohm
R280	24360151	CF, 150 ohm

LOCATION NUMBER	PART NUMBER	DESCRIPTION
R281	24360331	CF, 330 ohm
R282	24378223	CF, 22k ohm, $\pm 2\%$
R283	24378153	CF, 15k ohm, $\pm 2\%$
R284	24378152	CF, 1.5k ohm, $\pm 2\%$
R285	24378182	CF, 1.8k ohm, $\pm 2\%$
R286	24360160	CF, 16 ohm
R287	24360153	CF, 15k ohm
R288	24360271	CF, 270 ohm
R289	24360151	CF, 150 ohm
R290	24360821	CF, 820 ohm
R291	24360331	CF, 330 ohm
R292	24360272	CF, 2.7k ohm
R293, R294	24360153	CF, 15k ohm
R295	24378331	CF, 330 ohm, $\pm 2\%$
R296	24378102	CF, 1k ohm, $\pm 2\%$
R297	24378112	CF, 1.1k ohm, $\pm 2\%$
R298	24360183	CF, 18k ohm
R299	24360512	CF, 5.1k ohm
R300	24360222	CF, 2.2k ohm
R301	24378181	CF, 180 ohm, $\pm 2\%$
R302	24360101	CF, 100 ohm
R303	24360563	CF, 56k ohm
R304	24360102	CF, 1k ohm
R305	24360273	CF, 27k ohm
R309	24360182	CF, 1.8k ohm
R310	24360222	CF, 2.2k ohm
R311	24360512	CF, 5.1k ohm
R312	24360184	CF, 180k ohm
R313	24360104	CF, 100k ohm
R314	24360243	CF, 24k ohm
R315	24360751	CF, 750 ohm
R316	24360202	CF, 2k ohm
R317	24360222	CF, 2.2k ohm
R319	24360153	CF, 15k ohm
R320	24360204	CF, 200k ohm
R401	24360132	CF, 1.3k ohm
R402	24360102	CF, 1k ohm
R403	24360912	CF, 9.1k ohm
R404	24360472	CF, 4.7k ohm
R405	24360391	CF, 390 ohm
R406	24360182	CF, 1.8k ohm
R407, R408 R409, R410	24360391	CF, 390 ohm
R411	24360242	CF, 2.4k ohm
R412	24360561	CF, 560 ohm
R413	24360182	CF, 1.8k ohm
R414	24360103	CF, 10k ohm
R415	24378511	CF, 510 ohm, $\pm 2\%$
R416	24378151	CF, 150 ohm, $\pm 2\%$
R417	24360561	CF, 560 ohm
R418	24360332	CF, 3.3k ohm
R419	24360752	CF, 7.5k ohm
R420	24360333	CF, 33k ohm
R421	24378272	CF, 2.7k ohm, $\pm 2\%$
R422	24360472	CF, 4.7k ohm

LOCATION NUMBER	PART NUMBER	DESCRIPTION
R423	24378152	CF, 1.5k ohm, $\pm 2\%$
R424	24360914	CF, 910k ohm
R425	24360512	CF, 5.1k ohm
R426	24360333	CF, 33k ohm
R428	24360332	CF, 3.3k ohm
R429	24360102	CF, 1k ohm
R430	24360911	CF, 910 ohm
R431	24360152	CF, 1.5k ohm
R432	24360561	CF, 560 ohm
R433	24360332	CF, 3.3k ohm
R434	24360511	CF, 510 ohm
R436	24360132	CF, 1.3k ohm
R437	24360511	CF, 510 ohm
R438	24360751	CF, 750 ohm
R439	24360203	CF, 20k ohm
R440	24360221	CF, 220 ohm
R441	24360391	CF, 390 ohm
R442	24360363	CF, 36k ohm
R443	24360202	CF, 2k ohm
R444	24360333	CF, 33k ohm
R445	24360102	CF, 1k ohm
R446	24360334	CF, 330k ohm
R447	24360562	CF, 5.6k ohm
R448	24360334	CF, 330k ohm
R449	24360105	CF, 1M ohm
R451	70421202	VR, 10k ohm, 0.1W
R452	70421199	VR, 3.3k ohm, 0.1W
R454	70421202	VR, 10k ohm, 0.1W
R455	70421203	VR, 15k ohm, 0.1W
R456	70421202	VR, 10k ohm, 0.1W
R457	70421193	VR, 330 ohm, 0.1W
R461	24360244	CF, 240k ohm
R462	24360332	CF, 3.3k ohm
R463	24360472	CF, 4.7k ohm
R464	24360473	CF, 47k ohm
R465	24360392	CF, 3.9k ohm
R466, R467 R468	24360103	CF, 10k ohm
R469	24360752	CF, 7.5k ohm
R470	24360332	CF, 3.3k ohm
R472	24360182	CF, 1.8k ohm
R473	24360754	CF, 750k ohm
R474	24360152	CF, 1.5k ohm
R475	24360182	CF, 1.8k ohm
R476	24360122	CF, 1.2k ohm
R477	24360102	CF, 1k ohm
R478, R479	24360103	CF, 10k ohm
R480	24360102	CF, 1k ohm
R481	24360223	CF, 22k ohm
R482	24360103	CF, 10k ohm
R483, R484	24360154	CF, 150k ohm
R487	24360682	CF, 6.8k ohm

LOCATION NUMBER	PART NUMBER	DESCRIPTION
<b>U501 SERVO &amp; LOGIC PW UNIT 70191985</b>		
R501	24360122	CF, 1.2k ohm
R502	24360911	CF, 910 ohm
R503	24360432	CF, 4.3k ohm
R504	24360102	CF, 1k ohm
R505	24360103	CF, 10k ohm
R506	24360104	CF, 100k ohm
R507, R508	24360223	CF, 22k ohm
R515	24360392	CF, 3.9k ohm
R518	24360823	CF, 82k ohm
R519	24360103	CF, 10k ohm
R520, R521	24360683	CF, 68k ohm
R522	24360474	CF, 470k ohm
R523	24360473	CF, 47k ohm
R524	24360474	CF, 470k ohm
R525	24360473	CF, 47k ohm
R526	24360272	CF, 2.7k ohm
R527	24360912	CF, 9.1k ohm
R528, R529	24360472	CF, 4.7k ohm
R530, R531	24360104	CF, 100k ohm
R532	24360472	CF, 4.7k ohm
R533	24360101	CF, 100 ohm
R534	24360223	CF, 22k ohm
R535	24360472	CF, 4.7k ohm
R536	24360333	CF, 33k ohm
R537	24360103	CF, 10k ohm
R538	24360473	CF, 47k ohm
R539	24360332	CF, 3.3k ohm
R540	24360105	CF, 1M ohm
R541	24360102	CF, 1k ohm
R542, R543	24360682	CF, 6.8k ohm
R544	24360474	CF, 470k ohm
R545	24360183	CF, 18k ohm
R546	24360123	CF, 12k ohm
R547	24360103	CF, 10k ohm
R548	24360123	CF, 12k ohm
R549	24360183	CF, 18k ohm
<b>U201 VIDEO &amp; AUDIO PW UNIT 70191943</b>		
R550	70421162	VR, 500K ohm, 1/5W
<b>U501 SERVO &amp; LOGIC PW UNIT 70191985</b>		
R551, R552	70421238	VR, 470k ohm, 0.1W
R553	70421237	VR, 330k ohm, 0.1W
R560	24360684	CF, 680k ohm
R561	24360103	CF, 10k ohm
R562	24360105	CF, 1M ohm
R563	24360103	CF, 10k ohm
R564	24360122	CF, 1.2k ohm
R565	24360563	CF, 56k ohm
R566	24360471	CF, 470 ohm
R567	24360122	CF, 1.2k ohm
R568	24360393	CF, 39k ohm
R569	24360471	CF, 470 ohm

LOCATION NUMBER	PART NUMBER	DESCRIPTION
R570, R571 R572	24360183	CF, 18k ohm
R573		
R574	24360103	CF, 10k ohm
R575	24360183	CF, 18k ohm
R576	24360103	CF, 10k ohm
R577	24360393	CF, 39k ohm
R578	24360104	CF, 100k ohm
R579	24360473	CF, 47k ohm
R580, R581 R582, R583 R584	24360104	CF, 100k ohm
R585		
R586		
R587	24360154	CF, 150k ohm
R588	24360823	CF, 82k ohm
R589	24360224	CF, 220k ohm
R590	24360153	CF, 15k ohm
R591	24360823	CF, 82k ohm
R592	24360183	CF, 18k ohm
R593	24360474	CF, 470k ohm
R594	24360104	CF, 100k ohm
R595, R596	24360122	CF, 1.2k ohm
R597, R598	24360224	CF, 220k ohm
R599	24360104	CF, 100k ohm
R601	24360123	CF, 12k ohm
R602	24360473	CF, 47k ohm
R603	24360153	CF, 15k ohm
R604	24360332	CF, 3.3k ohm
R605	24360682	CF, 6.8k ohm
R606	24360153	CF, 15k ohm
R607, R608 R609	24360332	CF, 3.3k ohm
R610		
R611	24360682	CF, 6.8k ohm
R612	24360223	CF, 22k ohm
R613	24360154	CF, 150k ohm
R614	24360102	CF, 1k ohm
R615	24360103	CF, 10k ohm
R616	24360823	CF, 82k ohm
R617	24360103	CF, 10k ohm
R618	24360104	CF, 100k ohm
R619	24360223	CF, 22k ohm
R620	24360821	CF, 820 ohm
R621, R623 R624, R625 R626, R627 R628, R629	24360102	CF, 1k ohm
R630		
R631, R632		
R633, R634		
R635	24360472	CF, 4.7k ohm
R636	24360183	CF, 18k ohm
R637	24360473	CF, 47k ohm
R638	24360823	CF, 82k ohm
R639	24360103	CF, 10k ohm
R640	24360102	CF, 1k ohm
R641, R642	24360121	CF, 120 ohm

LOCATION NUMBER	PART NUMBER	DESCRIPTION
R646, R647 R648, R649	24360473	CF, 47k ohm
R650		
R651, R652	70421243	VR, 1k ohm
R660	24360472	CF, 4.7k ohm
R661	24360103	CF, 10k ohm
R662	24360222	CF, 2.2k ohm
R663, R664	24360103	CF, 10k ohm
R665	24360472	CF, 4.7k ohm
R666	24360103	CF, 10k ohm
R667	24360681	CF, 680 ohm
R671	24360221	CF, 220 ohm
R672, R673	24360103	CF, 10k ohm
R674	24360221	CF, 220 ohm
R678	24360101	CF, 100 ohm
R681	24360153	CF, 15k ohm
R682, R683 R684, R685 R686, R687 R688	24360103	CF, 10k ohm
R689		
R690		
R691		
R692	24360153	CF, 15k ohm
R693	24360223	CF, 22k ohm
R694	24360242	CF, 2.4k ohm
R695	24360222	CF, 2.2k ohm
R696	24360202	CF, 2k ohm
R697	24360103	CF, 10k ohm
R698	24360183	CF, 18k ohm
<b>U201 VIDEO &amp; AUDIO PW UNIT 70191943</b>		
R702, R703	24360104	CF, 100k ohm
R704, R705	24360752	CF, 7.5k ohm
R706	24360202	CF, 2k ohm
R707	24360243	CF, 24k ohm
R708	24360154	CF, 150k ohm
R709	24360124	CF, 120k ohm
R710	24360562	CF, 5.6k ohm
R711, R714	24360472	CF, 4.7k ohm
R715	24360562	CF, 5.6k ohm
R716	24360563	CF, 56k ohm
R717	24360472	CF, 4.7k ohm
R718	24360473	CF, 47k ohm
R719	24360332	CF, 3.3k ohm
R720	24360243	CF, 24k ohm
R722	24360103	CF, 10k ohm
R723	24360332	CF, 3.3k ohm
R724	24360242	CF, 2.4k ohm
R725	24360103	CF, 10k ohm
R726	24360912	CF, 9.1k ohm
R727	24360682	CF, 6.8k ohm
R729	24360332	CF, 3.3k ohm
R731	24360153	CF, 15k ohm
R732	24360684	CF, 680k ohm
R733	24360394	CF, 390k ohm

LOCATION NUMBER	PART NUMBER	DESCRIPTION
R735	24360102	CF, 1k ohm
R737	24360821	CF, 820 ohm
R738	24360334	CF, 330k ohm
R739	24360394	CF, 390k ohm
R740	24360105	CF, 1M ohm
R741	24360222	CF, 2.2k ohm
R742	24360272	CF, 2.7k ohm
R743	24360302	CF, 3k ohm
R744	24360752	CF, 7.5k ohm
R745	24360303	CF, 30k ohm
R752	70421200	VR, 4.7K ohm, 0.1W
R753	70421210	VR, 220k ohm 0.1W
R760	24360621	CF, 620 ohm
R761	24360229	CF, 2.2 ohm
R762	24360101	CF, 100 ohm
R763	24360153	CF, 15k ohm
R764	70420013	Fusible, 4.7 ohm, 1/4W
R765	24360621	CF, 620 ohm
<b>U801 POWER 1 PW UNIT 70191945</b>		
R801	24360221	CF, 220 ohm
R802	24360681	CF, 680 ohm
R803	24360152	CF, 1.5k ohm
R804	24360182	CF, 1.8k ohm
R805	24360152	CF, 1.5k ohm
R806	24531220	Fusible, 22 ohm, 1/2W
R807	24360471	CF, 470 ohm
R808	24360103	CF, 10k ohm
R809	24553392	OMF, 3.9k ohm, 1W
R810	24360333	CF, 33k ohm
R811	24360563	CF, 56k ohm
R812	24360103	CF, 10k ohm
R813	24552682	OMF, 6.8k ohm, 1/2W
R814	24360682	CF, 6.8k ohm
R815	24360242	CF, 2.4k ohm
R816	24360152	CF, 1.5k ohm
R817	24552151	OMF, 150 ohm, 1/2W
R818	24360152	CF, 1.5k ohm
R819	24360752	CF, 7.5k ohm
R820	24552682	OMF, 6.8k ohm, 1/2W
R821	24964151	OMF, 150 ohm, 2W
R822	24360272	CF, 2.7k ohm
R851	24061318	VR, 1k ohm, 0.15W
R852	24061322	VR, 4.7k ohm, 0.15W
<b>U001 PIF. SELECTOR POWER 2 PW UNIT 70194010</b>		
R861, R862	} 24553822	OMF, 8.2k ohm, 1W
R863		
R864	24553182	OMF, 1.8k ohm, 1W
R866, R867	} 24553682	OMF, 6.8k ohm, 1W
R868		
R869	24360103	CF, 10k ohm
R870, R871	24553472	OMF, 4.7k ohm, 1W
RA01	24360434	CF, 430k ohm
RA02	24360224	CF, 220k ohm

LOCATION NUMBER	PART NUMBER	DESCRIPTION
RA03	24360823	CF, 82k ohm
RA04	24360512	CF, 5.1k ohm
RA05	24360563	CF, 56k ohm
RA06	24360683	CF, 68k ohm
RA07	24360163	CF, 16k ohm
RA08	24360153	CF, 15k ohm
RA09	24360242	CF, 2.4k ohm
RA10	24360153	CF, 15k ohm
RA11	24360563	CF, 56k ohm
RA12	24360273	CF, 27k ohm
RA13	24360152	CF, 1.5k ohm
RA14	24360103	CF, 10k ohm
RA15	24360243	CF, 24k ohm
RA16	24360563	CF, 56k ohm
RA17	24360243	CF, 24k ohm
RA18	24360333	CF, 33k ohm
RA19	24360102	CF, 1k ohm
RA20	24360103	CF, 10k ohm
RA21	24360243	CF, 24k ohm
RA22	24360563	CF, 56k ohm
RA23	24360243	CF, 24k ohm
RA24	24941621	CC, 620 ohm, 1/4W
RA25	24360123	CF, 12k ohm
RA51	70421412	Potentiometer, 20k ohm $\times$ 8
<b>UX01 TIMER &amp; LOGIC CONTROL PW UNIT 70191986</b>		
RA81, RA82	} 24360223	CF, 22k ohm
RA83, RA84		
<b>U501 SERVO &amp; LOGIC PW UNIT 70191985</b>		
RF01	24360104	CF, 100k ohm
RF02	24360124	CF, 120k ohm
RF03	24360103	CF, 10k ohm
RF04	24360334	CF, 330k ohm
RF05	24360332	CF, 3.3k ohm
RF06	24360334	CF, 330k ohm
RF07	24360682	CF, 6.8k ohm
RF08	24360103	CF, 10k ohm
RF09	24360154	CF, 150k ohm
RF10	24360224	CF, 220k ohm
RF11	24360153	CF, 15k ohm
RF12, RF13	24360223	CF, 22k ohm
RF14	24378222	CF, 2.2k ohm, $\pm 2\%$
RF15	24378182	CF, 1.8k ohm, $\pm 2\%$
RF16	24360224	CF, 220k ohm
RF17	24360122	CF, 1.2k ohm
RF18	24360562	CF, 5.6k ohm
RF19	24360564	CF, 560k ohm
RF20	24360122	CF, 1.2k ohm
RF21	24360183	CF, 18k ohm
RF22	24360102	CF, 1k ohm
RF23	24360562	CF, 5.6k ohm
RF24	24360123	CF, 12k ohm
RF25	24360183	CF, 18k ohm



LOCATION NUMBER	PART NUMBER	DESCRIPTION
RF26	24360221	CF, 220 ohm
RF27	24360105	CF, 1M ohm
RF28	24360472	CF, 4.7k ohm
RF29	24360103	CF, 10k ohm
RF30	24360104	CF, 100k ohm
RF31	24360123	CF, 12k ohm
RF32	24360104	CF, 100k ohm
RF33	24360823	CF, 82k ohm
<b>UX01 TIMER &amp; LOGIC CONTROL PW UNIT 70191986</b>		
RL01	24360271	CF, 270 ohm
RL02	24360223	CF, 22k ohm
RL03	24360331	CF, 330 ohm
RL04	24360223	CF, 22k ohm
RL05	24360511	CF, 510 ohm
RL06	24360331	CF, 330 ohm
RL07	24360361	CF, 360 ohm
<b>UX02 REMOTE CONTROL SWITCH PW UNIT 70194011</b>		
RL12	24360123	CF, 12k ohm
RL13	24360473	CF, 47k ohm
RL14	24360683	CF, 68k ohm
RL15	24360393	CF, 39k ohm
<b>U501 SERVO &amp; LOGIC PW UNIT 70191985</b>		
RL21, RL22	24360102	CF, 1k ohm
RL23	24360103	CF, 10k ohm
RL24	24360102	CF, 1k ohm
RL26	24360241	CF, 240 ohm
RL61	24360272	CF, 2.7k ohm
RL62	24360392	CF, 3.9k ohm
RL63	24360103	CF, 10k ohm
RL67	24360472	CF, 4.7k ohm
RL69, RL71	24360223	CF, 22k ohm
RL72	24360103	CF, 10k ohm
RL73	24360273	CF, 27k ohm
RL75	24360243	CF, 24k ohm
RL76	24360104	CF, 100k ohm
RL84	24360223	CF, 22k ohm
RL85, RL86 RL87, RL88	24360472	CF, 4.7k ohm
RL91	24360122	CF, 1.2k ohm
RL92	24552272	OMF, 2.7k ohm, 1/2W
RL93	24360473	CF, 47k ohm
RL94	24360104	CF, 100k ohm
RL95	24360102	CF, 1k ohm
RL96	24360103	CF, 10k ohm
RL97	24360104	CF, 100k ohm
RL98	24360473	CF, 47k ohm
RL99	24360102	CF, 1k ohm
<b>UX01 TIMER &amp; LOGIC CONTROL PW UNIT 70191986</b>		
RR01	24360822	CF, 8.2k ohm

LOCATION NUMBER	PART NUMBER	DESCRIPTION
RR02	24360224	CF, 220k ohm
RR03	24360683	CF, 68k ohm
RR04	24360104	CF, 100k ohm
RR05, RR06	24360272	CF, 2.7k ohm
RR07	24360331	CF, 330 ohm
RR08	24360472	CF, 4.7k ohm
RR09	24360824	CF, 820k ohm
RR10	24360102	CF, 1k ohm
<b>UX02 REMOTE CONTROL SWITCH PW UNIT 70194011</b>		
RR64	24360824	CF, 820k ohm
RR65	24360472	CF, 4.7k ohm
RR66	24360823	CF, 82k ohm
RR67	24360183	CF, 18k ohm
RR68	24360102	CF, 1k ohm
RR69	24360391	CF, 390 ohm
RR70	24360103	CF, 10k ohm
RR71	24360333	CF, 33k ohm
RR72	24360472	CF, 4.7k ohm
RR73	24360333	CF, 33k ohm
RR74	24360223	CF, 22k ohm
RR75	24360183	CF, 18k ohm
RR76	24360913	CF, 91k ohm
RR77, RR78	24360103	CF, 10k ohm
RR79, RR80 RR81, RR82 RR83, RR84	24360223	CF, 22k ohm
<b>UX01 TIMER &amp; LOGIC CONTROL PW UNIT 70191986</b>		
RX01	24360104	CF, 100k ohm
RX02	24360333	CF, 33k ohm
RX03	24360103	CF, 10k ohm
RX04, RX05	24360102	CF, 1k ohm
RX06	24360105	CF, 1M ohm
RX07	24360512	CF, 5.1k ohm
RX09, RX10	24360102	CF, 1k ohm
RX11	24360822	CF, 8.2k ohm
RX12	24360102	CF, 1k ohm
RX13	24360223	CF, 22k ohm
RX14	24360102	CF, 1k ohm
RX15	24360104	CF, 100k ohm
RX16	24360103	CF, 10k ohm
<b>UX02 REMOTE CONTROL SWITCH PW UNIT 70194011</b>		
RX81	24360911	CF, 910 ohm
RX82	24360131	CF, 130 ohm
RX83	24360332	CF, 3.3k ohm
RX84	24360331	CF, 330 ohm
RX85	24360332	CF, 3.3k ohm
RX86	24360103	CF, 10k ohm
RX87	24360271	CF, 270 ohm
RX88	24360752	CF, 7.5k ohm
RX89	24360153	CF, 15k ohm

LOCATION NUMBER	PART NUMBER	DESCRIPTION
<b>COILS AND TRANSFORMERS</b>		
<b>U001 PIF. SELECTOR POWER 2 PW UNIT 70194010</b>		
L001	23262951	Coil, RF Choke, TRF1019
L002	23261985	Coil, RF Choke, TRF9221
L003	23262856	Coil, TRF1452, PIF
L004	23262853	Coil, TRF1454, PIF
L005	23262852	Coil, TRF1455, AFT
L006	23283150	Coil, Peaking, TRF4150JG
L007	23283470	Coil, Peaking, TRF4470JG
L008	23283120	Coil, Peaking, TRF4120JG
L009	70256001	Coil, LCA01, SIF, 5.5MHz
<b>U201 VIDEO &amp; AUDIO PW UNIT 70191943</b>		
L101	23283479	Coil, Peaking, TRF4479JG
L102	23283221	Coil, Peaking, TRF4221JG
L103	23283829	Coil, Peaking, TRF4829JG
L104	70215829	Coil, Peaking, 829J
L105	23283121	Coil, Peaking, TRF4121JG
L106	23283102	Coil, Peaking, TRF4102JG
L107	23283100	Coil, Peaking, TRF4100JG
L108	23283470	Coil, Peaking, TRF4470JG
L109, L110	23283109	Coil, Peaking, TRF4109JG
L201	23283829	Coil, Peaking, TRF4829JG
L202, L203	23283151	Coil, Peaking, TRF4151JG
L204	23283330	Coil, Peaking, TRF4330JG
L205, L206	23283820	Coil, Peaking, TRF4820JG
L207	23283330	Coil, Peaking, TRF4330JG
L208	23283180	Coil, Peaking, TRF4180JG
L209	23283151	Coil, Peaking, TRF4151JG
L210	23283829	Coil, Peaking, TRF4829JG
L211	23283560	Coil, Peaking, TRF4560JG
L301	23283472	Coil, Peaking, TRF4472JG
L401	23283680	Coil, Peaking, TRF4680JG
L402	23283241	Coil, Peaking, TRF4241JG
L403	23283829	Coil, Peaking, TRF4829JG
L404, L405	23283121	Coil, Peaking, TRF4121JG
L406	23283330	Coil, Peaking, TRF4330JG
L407	23283479	Coil, Peaking, TRF4479JG
L408	23283181	Coil, Peaking, TRF4181JG
L409	23283151	Coil, Peaking, TRF4151JG
L410	23283390	Coil, Peaking, TRF4390JG
L451, L452	70252034	Coil, Comb, Filter, Adjust, TR
<b>U501 SERVO &amp; LOGIC PW UNIT 70191985</b>		
L501	70212030	Coil, LGA01
<b>U201 VIDEO &amp; AUDIO PW UNIT 70191943</b>		
L701	23283391	Coil, Peaking, TRF 4391JG
T201	70252033	Coil, TRV033
T701	70214002	Oscillator, Transformer, 65 kHz
<b>U801 POWER 1 PW UNIT 70191945</b>		
T801	23211997	Line Filter, TRF3004C

LOCATION NUMBER	PART NUMBER	DESCRIPTION
<b>UX02 REMOTE CONTROL SWITCH PW UNIT 70194011</b>		
LR61	70212032	Coil, LAJ01, 37.9 kHz
<b>TRANSISTORS</b>		
<b>U001 PIF. SELECTOR POWER 2 PW UNIT 70194010</b>		
Q001	A6708871	Transistor, 2SC388ATM FA
Q003	A6048371	FET Transistor, 2SK30ATM-GR
Q004	A6534430	Transistor, 2SA1048-Y
Q006	A6332430	Transistor, 2SC2458-Y
Q007	A6534045	Transistor, 2SA1015-Y FA
Q008	A6534430	Transistor, 2SA1048-Y
Q009	A6332430	Transistor, 2SC2458-Y
Q010	A6534045	Transistor, 2SA1015-Y FA
<b>U201 VIDEO &amp; AUDIO PW UNIT 70191943</b>		
Q103, Q104	A6509141	Transistor, 2SA562TM-Y FA
Q105	A6534430	Transistor, 2SA1048-Y
Q106	A6342200	Transistor, 2SC2878-A
Q107	A6332430	Transistor, 2SC2458-Y
Q108, Q109	A6534430	Transistor, 2SA1048-Y
Q110, Q111	A6332430	Transistor, 2SC2458-Y
Q112, Q113		
Q204, Q205	A6534430	Transistor, 2SA1048-Y
Q206, Q207	A6332430	Transistor, 2SC2458-Y
Q208, Q209	A6534430	Transistor, 2SA1048-Y
Q210		
Q211, Q212	A6332430	Transistor, 2SC2458-Y
Q213		
Q214	A6534430	Transistor, 2SA1048-Y
Q215, Q216	A6332430	Transistor, 2SC2458-Y
Q217		
Q218	A6534430	Transistor, 2SA1048-Y
Q219, Q220	A6332430	Transistor, 2SC2458-Y
Q221		
Q403, Q404	A6332430	Transistor, 2SC2458-Y
Q405, Q406		
Q407, Q408		
Q409, Q410		
Q411, Q412		
<b>U501 SERVO &amp; LOGIC PW UNIT 70191985</b>		
Q504, Q505	A6332430	Transistor, 2SC2458-Y
Q508, Q509		
Q510, Q511		
Q512	A6534430	Transistor, 2SA1048-Y
Q513		
Q514, Q515		
Q516, Q517	A6332430	Transistor, 2SC2458-Y
Q518		
Q519	A6534430	Transistor, 2SA1048-Y



LOCATION NUMBER	PART NUMBER	DESCRIPTION
Q520	A6332430	Transistor, 2SC2458-Y
Q522, Q523	A6534430	Transistor, 2SA1048-Y
Q524	A6332430	Transistor, 2SC2458-Y
Q525	A6844100	Transistor, 2SD686
Q526	A6325540	Transistor, 2SC2236-Y
Q527	A6332430	Transistor, 2SC2458-Y
Q528	A671666H	Transistor, 2SC496-Y, X
Q529	A6332430	Transistor, 2SC2458-Y
Q610, Q611	A6534430	Transistor, 2SA1048-Y
Q612	A6332430	Transistor, 2SC2458-Y
Q613	A6534430	Transistor, 2SA1048-Y
Q614, Q615	A6332430	Transistor, 2SC2458-Y
Q616	A6534430	Transistor, 2SA1048-Y
Q617, Q619	A6332430	Transistor, 2SC2458-Y
Q620, Q621		
Q622, Q623		
Q624, Q625		
Q626, Q627		
Q628, Q629		
Q630, Q631		
Q632, Q633		
Q635, Q636		
Q637		
Q641	A6533240	Transistor, 2SA966-Y
Q642, Q643	A6332430	Transistor, 2SC2458-Y
Q651, Q652	A6533240	Transistor, 2SA966-Y
Q653, Q654		
Q655, Q656		
Q657, Q658		
Q661, Q662		
Q663, Q664		
Q670	A6325540	Transistor, 2SC2236-Y
Q671, Q672	A6841900	Transistor, 2SD549
Q673, Q675	A6332430	Transistor, 2SC2458-Y
Q677, Q678		
Q679	A6534430	Transistor, 2SA1048-Y
U201 VIDEO & AUDIO PW UNIT 70191943		
Q703	A6332430	Transistor, 2SC2458-Y
Q704, Q705	A6325825	Transistor, 2SC2240-GR
Q706	A6533625	Transistor, 2SA970-GR
Q707	A6319302	Transistor, 2SC1959-Y, FA
Q708, Q709	A6332430	Transistor, 2SC2458-Y
Q710		
U801 POWER 1 PW UNIT 70191945		
Q802	A6848520	Transistor, 2SD880-Y
Q803, Q804	A6317547	Transistor, 2SC1815-Y, FA
Q805	A6848520	Transistor, 2SD880-Y
Q806, Q807	A6533625	Transistor, 2SA970-GR
Q808	A6314446	Transistor, 2SC1627-Y FA
Q809	A6533240	Transistor, 2SA966-Y
Q810	A6317547	Transistor, 2SC1815-Y, FA

LOCATION NUMBER	PART NUMBER	DESCRIPTION
U001 PIF. SELECTOR POWER 2 PW UNIT 70194010		
Q861	A6841475	Transistor, 2SD525-Y Z
QA02	A6332430	Transistor, 2SC2458-Y
QA03, Q04	A6534430	Transistor, 2SA1048-Y
QA05		
QA06, QA07	A6332430	Transistor, 2SC2458-Y
QA08		
QA09	A6317547	Transistor, 2SC1815-Y, FA
QA10	A6332430	Transistor, 2SC2458-Y
UX01 TIMER & LOGIC CONTROL PW UNIT 70191986		
QA81, QA82	A6332430	Transistor, 2SC2458-Y
QL01, QL02	A6534430	Transistor, 2SA1048-Y
UX02 REMOTE CONTROL SWITCH PW UNIT 70194011		
QL11	A6332430	Transistor, 2SC2458-Y
UX01 TIMER & LOGIC CONTROL PW UNIT 70191986		
QR01	A6332430	Transistor, 2SC2458-Y
QR02	A6041880	FET, 2SK117-BL
QR03	A6332430	Transistor, 2SC2458-Y
UX02 REMOTE CONTROL SWITCH PW UNIT 70194011		
QR62, QR63	A6332430	Transistor, 2SC2458-Y
QR64, QR65		
QR66, QR67		
QR68		
UX01 TIMER & LOGIC CONTROL PW UNIT 70191986		
QX02	A6332430	Transistor, 2SC2458-Y
UX02 REMOTE CONTROL SWITCH PW UNIT 70194011		
QX81	A6317547	Transistor, 2SC1815-Y, FA
QX82, QX83	A6332430	Transistor, 2SC2458-Y
QX84		

DIODE		
U001 PIF. SELECTOR POWER 2 PW UNIT 70194010		
D001	A7246711	Diode, 1S1555
U201 VIDEO & AUDIO PW UNIT 70191943		
D101, D102	A7160570	Diode, 1SS176
D103, D201		
D202, D203		
D204, D205		
D206, D207		
D208, D401		

LOCATION NUMBER	PART NUMBER	DESCRIPTION
U501 SEERVO & LOGIC PW UNIT 70191985		
D501, D502	A7246711	Diode, 1S1555
D503, D504		
D505, D506		
D507, D508		
D509, D510		
D511, D512		
D513, D514		
D515, D516		
D517, D518	A7110261	Zener Diode, 05Z9.1X
D519		
D520, D521	A7246711	Diode, 1S1555
D522, D523		
D524, D601		
D602, D603		
D604, D605		
D606, D607		
D608, D609		
D610	A7110018	Zener, Diode, 05Z5.6Z
D612, D613	A7246711	Diode, 1S1555
D614, D615		
D616	A7109364	Zener Diode, 05Z3.6Z
D617		
D618, D619	A7246711	Diode, 1S1555
D620, D621		
D622, D623		
D624, D627		
D628	A7110018	Zener, Diode, 05Z5.6Z
D629		
D630, D631	A7246711	Diode, 1S1555
D633, D634		
U201 VIDEO & AUDIO PW UNIT 70191943		
D701, D702	A7160570	Diode, 1SS176
D703, D704		
U801 POWER PW 1 UNIT 70191945		
D801, D802	70115177	Diode, S3V10
D803, D804		
D801, D802	70115172	Diode, 30DIFC
D803, D804		
D805	A7160570	Diode, 1SS176
D806	A7109242	Zener Diode, 05Z2.4X
D807	A7160570	Diode, 1SS176
D808	A7110360	Zener Diode, 05Z11 Z
D809	A7160570	Diode, 1SS176
D810	A7286107	Zener Diode, 02Z6.2A
D811	A7160570	Diode, 1SS176
D813, D814	A7568521	Diode, 1S1885, FA
D815, D816		
D817		
D818	A7160570	Diode, 1SS176
U001 PIF. SELECTOR POWER 2 PW UNIT 70194010		
D862	A7275400	Diode, 1S2462

LOCATION NUMBER	PART NUMBER	DESCRIPTION
D863	A7110664	Zener Diode, 05Z24Y
D864	A7110664	Zener Diode, 05Z24Y
D866, D867	A7110463	Zener Diode, 05Z13Z
D868	A7110208	Zener Diode, 05Z8.2Y
DA01, DA02	A7246653	Diode, 1S1554
DA03, DA04		
DA05, DA06		
DA07, DA08		
DA09	23115922	Zener Diode, $\mu$ PC574J
DA10	A7246711	Diode, 1S1555
DA12, DA13	A7246653	Diode, 1S1554
DA14, DA15	A7246653	Diode, 1S1554
DA16, DA17		
DA18, DA19		
DA20, DA21	A7246711	Diode, 1S1555
DA22		
<b>UX01 TIMER &amp; LOGIC CONTROL PW UNIT 70191986</b>		
DA81, DA82	A8605679	LED, TLG113A (FA)
DA83, DA84		
DA85, DA86		
DA87, DA88		
DA89, DA90	A7160570	Diode, 1SS176
DA91, DA92		
DA93, DA94		
DA95, DA96	A8605679	LED, TLG113A (FA)
DL02, DL04		
DL05	A8600607	LED, TLR113
DL07	A8605679	LED, TLG113A (FA)
DL09	A8600607	LED, TLR113
DL12	A8600607	LED, TLR113
<b>UX02 REMOTE CONTROL SWITCH PW UNIT 70194011</b>		
DL21	A7246711	Diode, 1S1555
DL22	A7160570	Diode, 1SS176
<b>UX01 TIMER &amp; LOGIC CONTROL PW UNIT 70191986</b>		
DR01	23115800	Diode, PH302, Photo
DR02	A7160570	Diode, 1SS176
<b>UX02 REMOTE CONTROL SWITCH PW UNIT 70194011</b>		
DR62, DR63	A7246711	Diode, 1S1555
DR64, DR65		
<b>UX01 TIMER &amp; LOGIC CONTROL PW UNIT 70191986</b>		
DX01, DX02	A7160570	Diode, 1SS176
DX03, DX04		
DX05, DX06		

LOCATION NUMBER	PART NUMBER	DESCRIPTION
DX08	A7160570	Diode, 1SS176
<b>UX02 REMOTE CONTROL SWITCH PW UNIT 70194011</b>		
DX81	A7110042	Zener Diode, 05Z5.1Z
DX82	A8605679	LED, TLG113A (FA)
<b>INTEGRATED CIRCUITS</b>		
<b>U001 PIF. SELECTOR POWER 2 PW UNIT 70194010</b>		
IC002	B0354710	IC, TA7607AP
IC005	B0325290	IC, TA7337P
<b>U201 VIDEO &amp; AUDIO PW UNIT 70191943</b>		
IC101	B0325300	IC, TA7339P
IC102	B0356720	IC, TA7672P
IC201	B0356940	IC, TA7693P
IC202	B0325420	IC, TA7350P
IC301	B0357700	IC, TA7723P
IC401	B0357730	IC, TA7726P
IC402	B0357690	IC, TA7722P
<b>U501 SERVO &amp; LOGIC PW UNIT 70191985</b>		
IC501	B0430810	IC, TM4217P
IC502, IC503	B0351500	IC, TA75902P
IC601	B0403539	IC, TMP4320P-6205
IC602	B0403513	IC, TMP4320AN-6254
<b>U201 VIDEO &amp; AUDIO PW UNIT 70191943</b>		
IC701	B0312560	IC, TA7137P(Y-C)
IC702	B0325080	IC, TA7325P
<b>U801 POWER 1 PW UNIT 70191945</b>		
IC811	B0372540	IC, TA78005AP
<b>U001 PIF. SELECTOR POWER 2 PW UNIT 70194010</b>		
ICA01	70119231	IC, $\mu$ PC 1362C
<b>UX01 TIMER &amp; LOGIC CONTROL PW UNIT 70191986</b>		
ICX01	B0405577	IC, TCP4633BN-9919
<b>CIRCUIT BOARD ASSEMBLIES</b>		
U001	70194010	PC Board Assy, PIF Selector & Power 2
U201	70191943	PC Board Assy, Video & Audio
U501	70191985	PC Board Assy, Servo & Logic
U801	70191945	PC Board Assy, Power 1
UX01	70191986	PC Board Assy, Timer & Logic Control

LOCATION NUMBER	PART NUMBER	DESCRIPTION
UX02	70194011	PC Board Assy, REMOTE CONTROL Switch
<b>MISCELLANEOUS</b>		
<b>U001 PIF. SELECTOR POWER 2 PW UNIT 70194010</b>		
H001	70121029	Tuner, TN-EG511AX1
$\Delta$ F861	23144163	Fuse, 0.315AT
$\Delta$ F861A	23165102	Holder, Fuse
S001	70145197	Switch, 1C1P
Z001	A5611110	Filter, PIF, F1034
Z002	23107972	Ceramic Video Trap, 5.5MHz
Z003	23107947	Ceramic Filter, 5.5MHz
<b>U201 VIDEO &amp; AUDIO PW UNIT 70191943</b>		
X101	70138011	1H Delay Line
X401	70138013	2H Delay Line
X402	23153979	Crystal, 4.43MHz
X403	23250966	1H Delay Line, PAL/SECAM
Z201	70132076	Filter, LC802B
Z202	70132077	Delay Line, DL401E
Z203	70132023	Filter, LC.660A
Z204	70132077	Delay Line, DL401E
Z401	70132081	Filter, LC854B
Z402	70153022	Filter, Ceramic, 5.12 MHz
Z403	70132080	Filter, LC730F
Z701	70212019	Coil, 65 kHz, Trap
<b>U501 SERVO &amp; LOGIC PW UNIT 70191985</b>		
X501	70153029	Xtal, 2.986 MHz
Z601	70153031	Ceramic Resonator, 455 kHz
Z602	70427020	Resistor Block, P7682M
Z603	24094863	Capacitor Block, 0.01 $\mu$ F $\times$ 4
Z604	70153040	Ceramic Resonator, 500 kHz
Z605	70427020	Resistor Block, P-7682M
<b>U801 POWER 1 PW UNIT 70191945</b>		
$\Delta$ F801	23144125	Fuse, 500 mA
$\Delta$ F801A	23165102	Holder, Fuse
<b>UX01 TIMER &amp; LOGIC CONTROL PW UNIT 70191986</b>		
GX01	70113045	FIP, Timer, FIP7JM10
GX01A	70843062	Holder, FIP
SA81, SA82 SL02, SL03 SL04, SL05 SL07, SL09 SX02, SX03 SX04, SX05 SX06	70145200	Tact Switch, KHH10902
ZX01	70153028	Ceramic Resonator, 400 kHz
ZX02	70427017	Resistor Black, P-4 682M

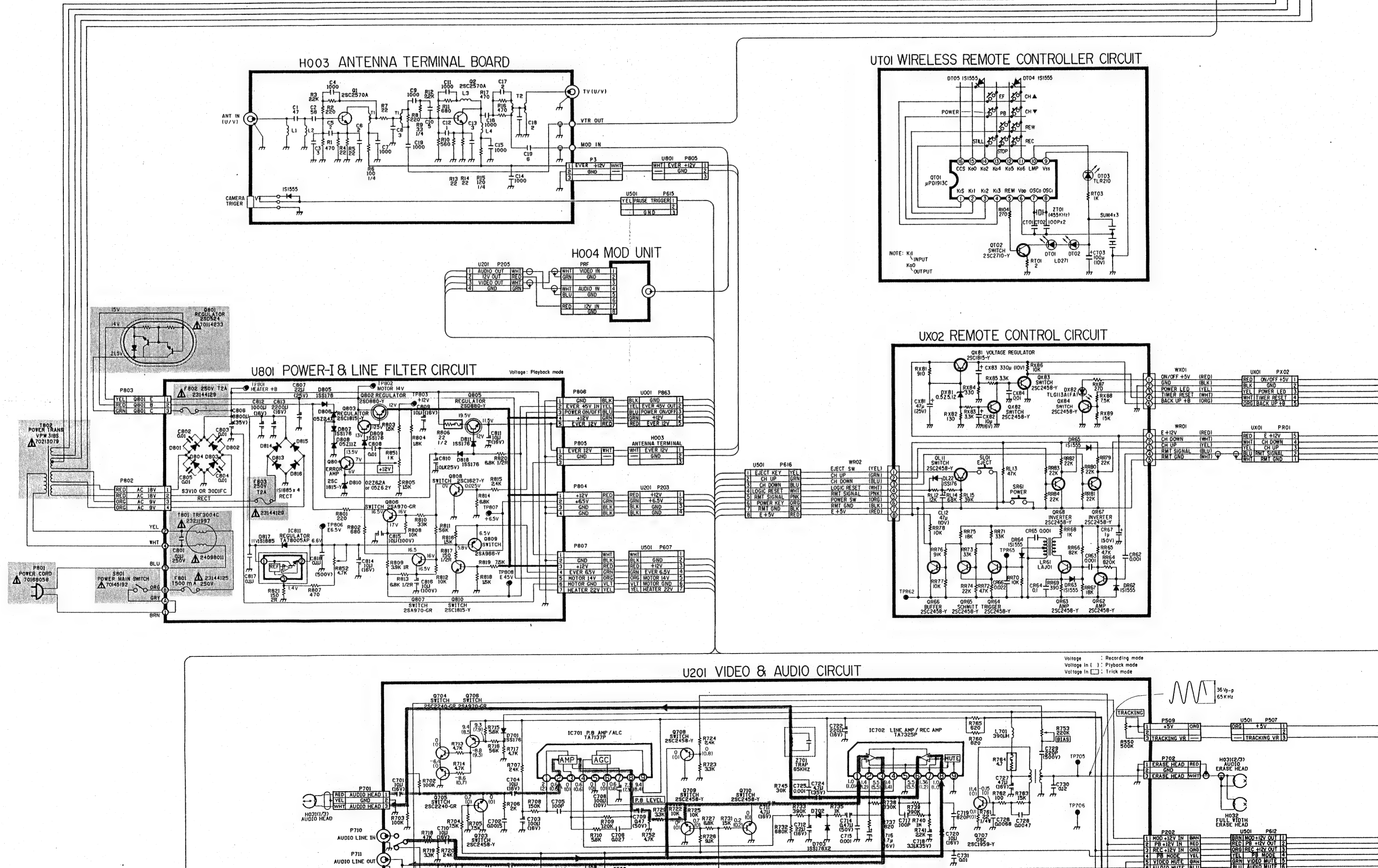
LOCATION NUMBER	PART NUMBER	DESCRIPTION
<b>UX02 REMOTE CONTROL SWITCH PW UNIT 70194011</b>		
SL01, SR61	70145200	Tact Switch, KHH10902
<b>COMPONENTS NOT MOUNTED PC BOARD</b>		
C661, C662 C663, C664	} 24094554	CD, 1000pF
C671, C672		
H003	71591473	PF, 0.047 $\mu$ F
H004	70142054	Antenna, VTU-VT615
T802	70123053	MOD-MD5636T
T802	70213083	Transformer, VPW31S
$\Delta$ P801	70168060	Cord, 2P, 2.2 mm, 2.5A, Power
$\Delta$ P801A	70846044	Holder, Cord
Q801	A6841305	Transistor, 2SD524
<b>REMOTE TRANSMITTER</b>		
UT01	70191952	
<b>CAPACITORS</b>		
CT01, CT02	24212101	CD, 100pF

LOCATION NUMBER	PART NUMBER	DESCRIPTION
CT03	70430101	EL, 100 $\mu$ F, 6.3V
<b>RESISTORS</b>		
RT01	24360209	CF, 2 ohm
RT03	24360102	CF, 1k ohm
RT04	24360270	CF, 27 ohm
<b>TRANSISTOR</b>		
QT02	A6333720	Transistor, 2SC2710-Y
<b>DIODES</b>		
DT01, DT02	23115871	Diodes, LD-271
DT03	A8603160	LED, TLR210
DT04, DT05	A7246711	Diodes, 1S1555
<b>INTEGRATED CIRCUITS</b>		
ICT01	70119311	IC $\mu$ PC-1913C
<b>MISCELLANEOUS</b>		
ZT01	70156004	RESONATOR, KBR-455BTL

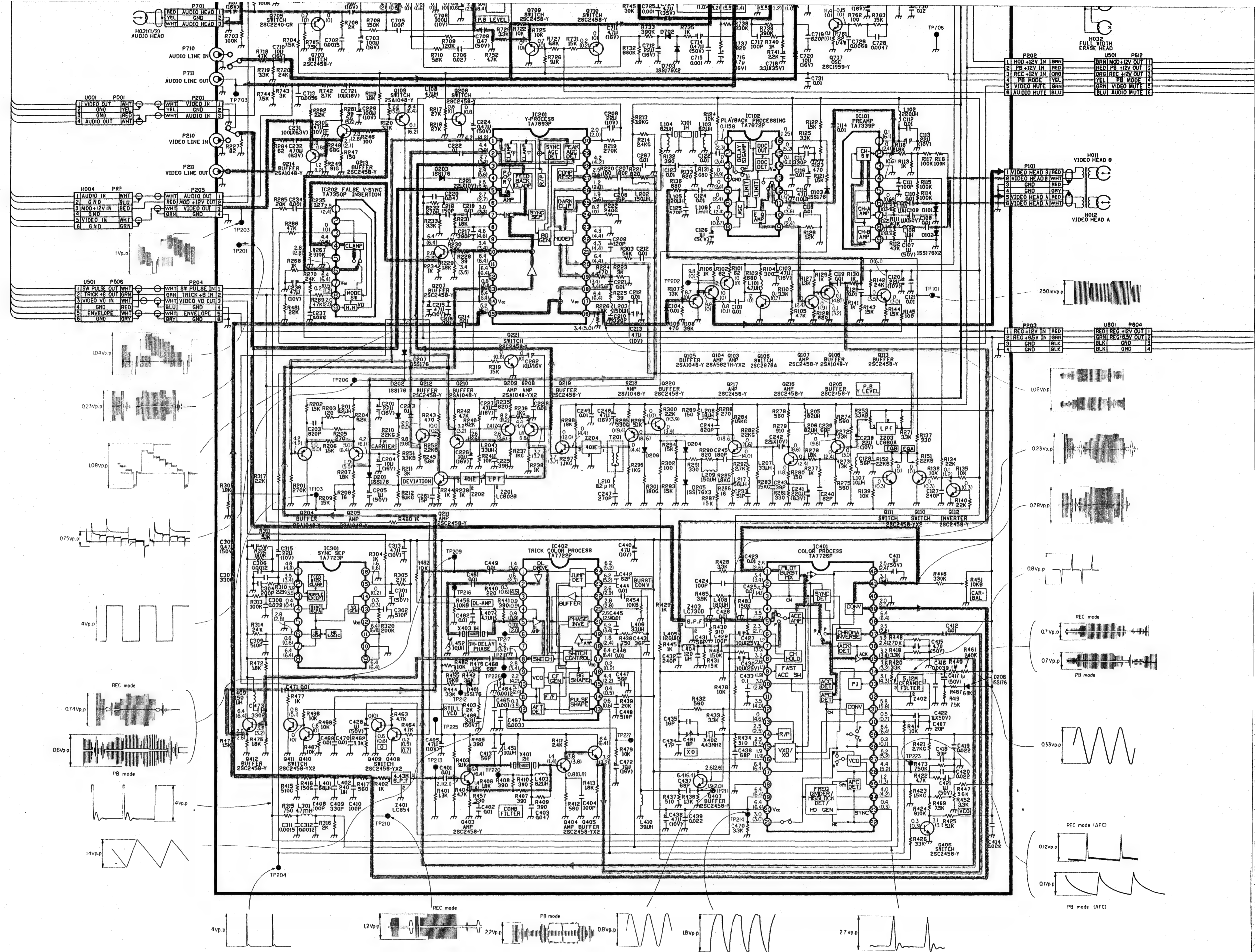
# TOSHIBA

## SCHEMATIC DIAGRAM OF V-33

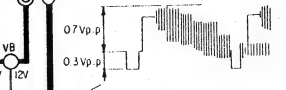
- +B
- Recording mode
- Playback mode
- Recording Y signal
- Playback Y signal
- Recording and playback mode



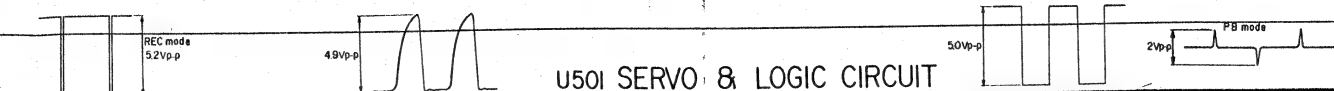
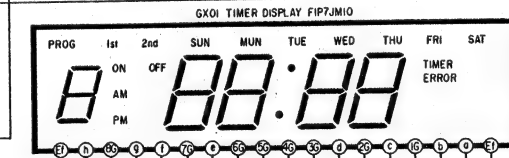




## Voltage . Recording mode

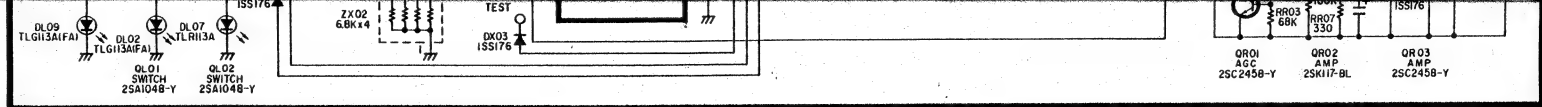


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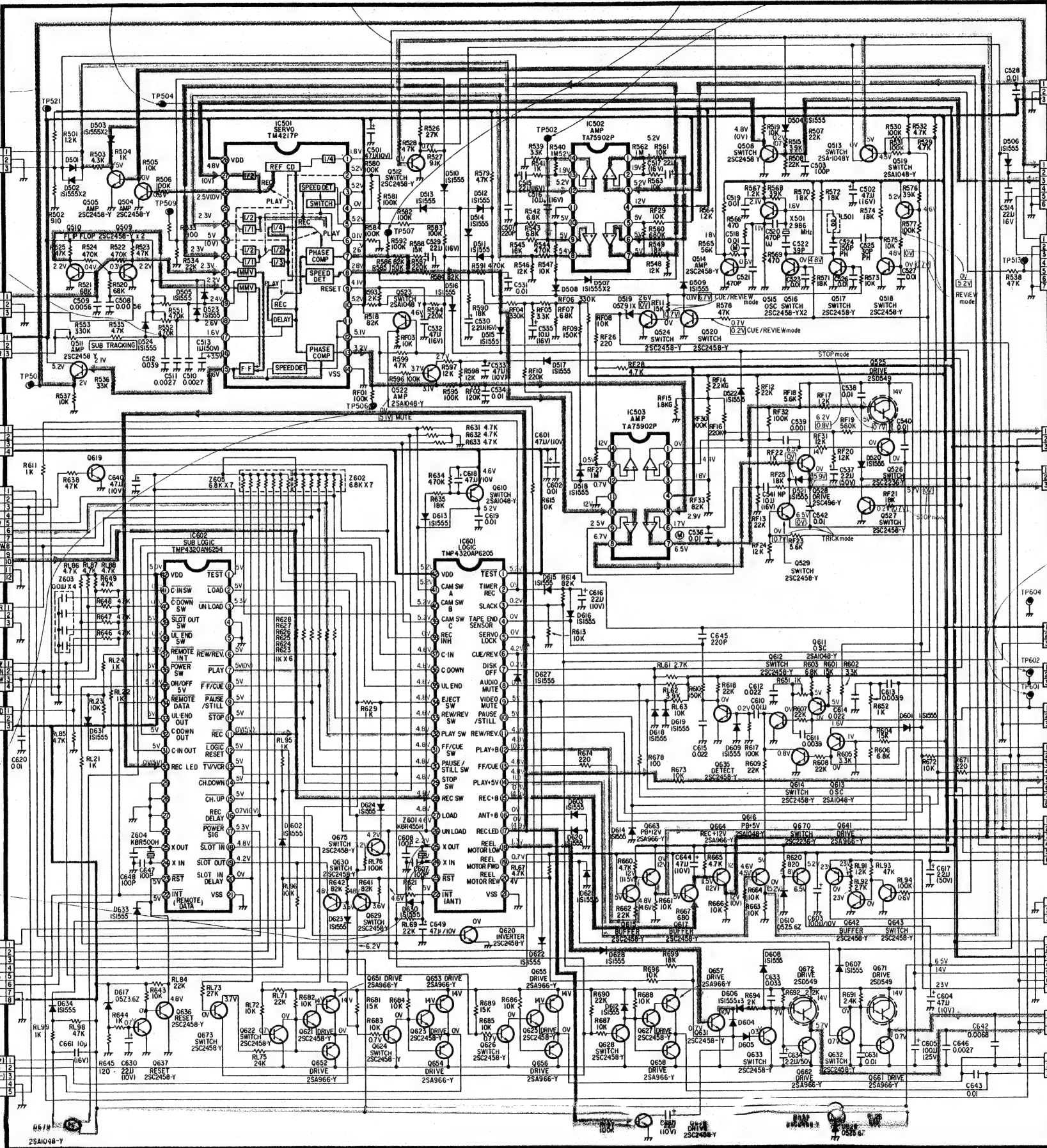


Voltage : Recording mode  
Voltage in ( ) : Playback mode  
Voltage in ☐ : Trick mode

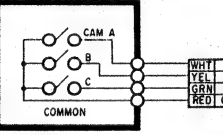




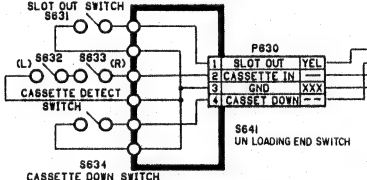
# U501 SERVO & LOGIC CIRCUIT



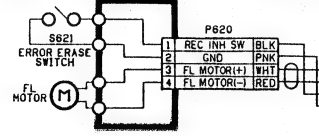
## U631 CAM SWITCH CIRCUIT



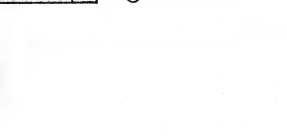
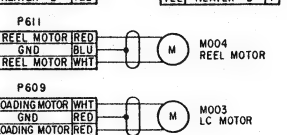
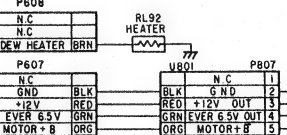
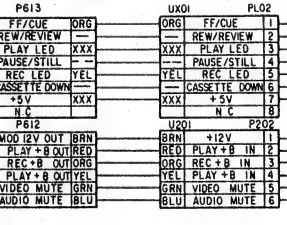
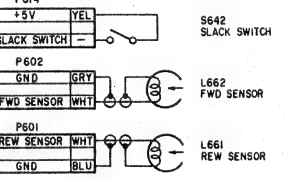
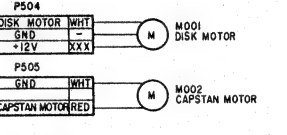
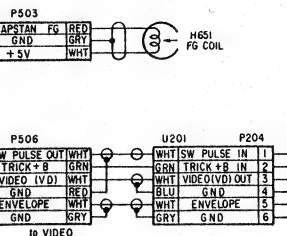
## U603 SWITCH RELAY CIRCUIT



## U602 MOTOR RELAY CIRCUIT



Waveform : Recording mode  
Voltage in ( ) : Playback mode  
Voltage in [ ] : Trick mode

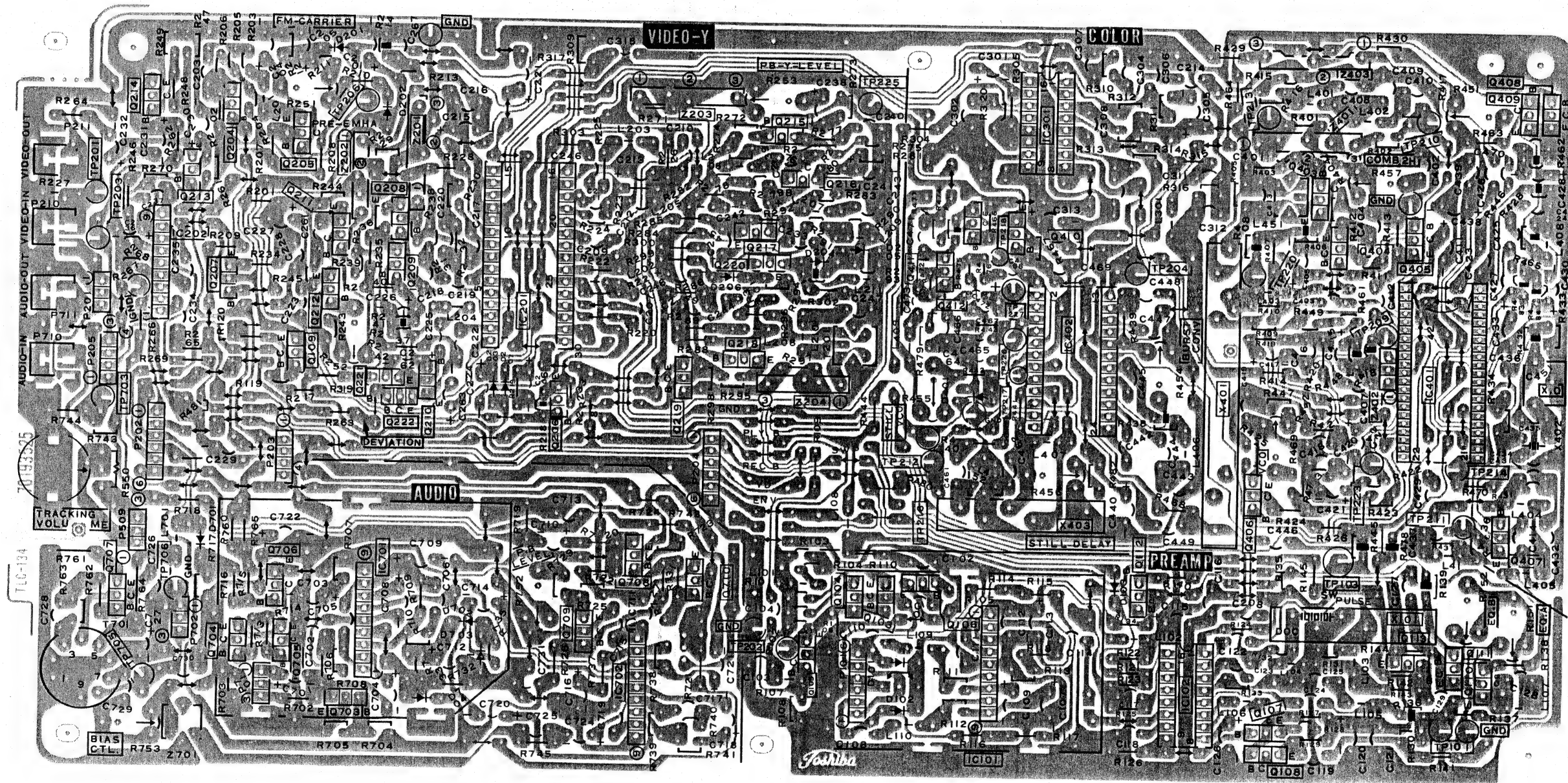




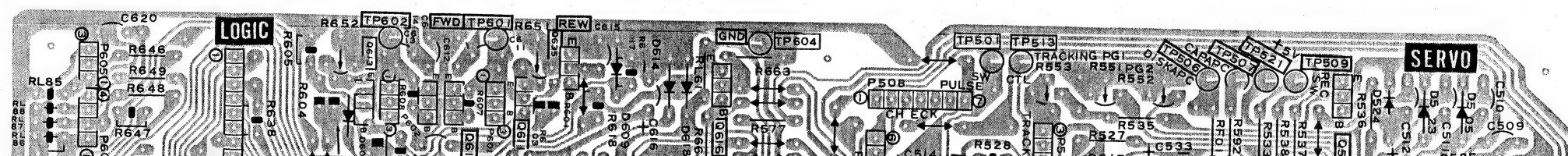
# TOSHIBA

## PRINTED WIRING BOARDS OF V-33

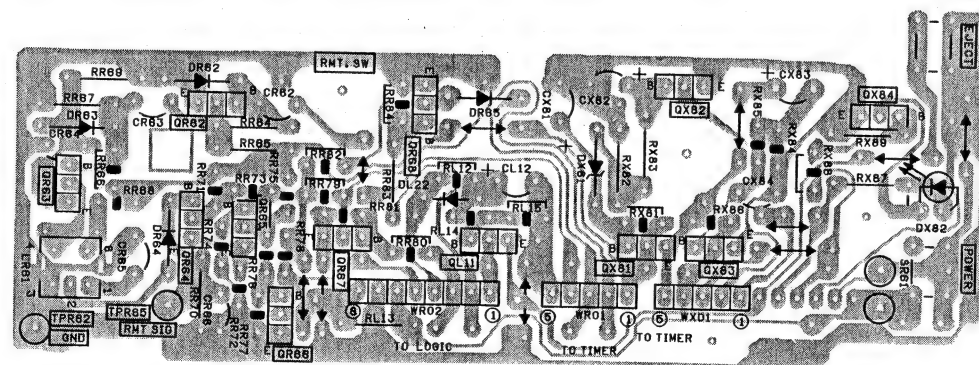
### U201 VIDEO & AUDIO



### U501 SERVO & LOGIC

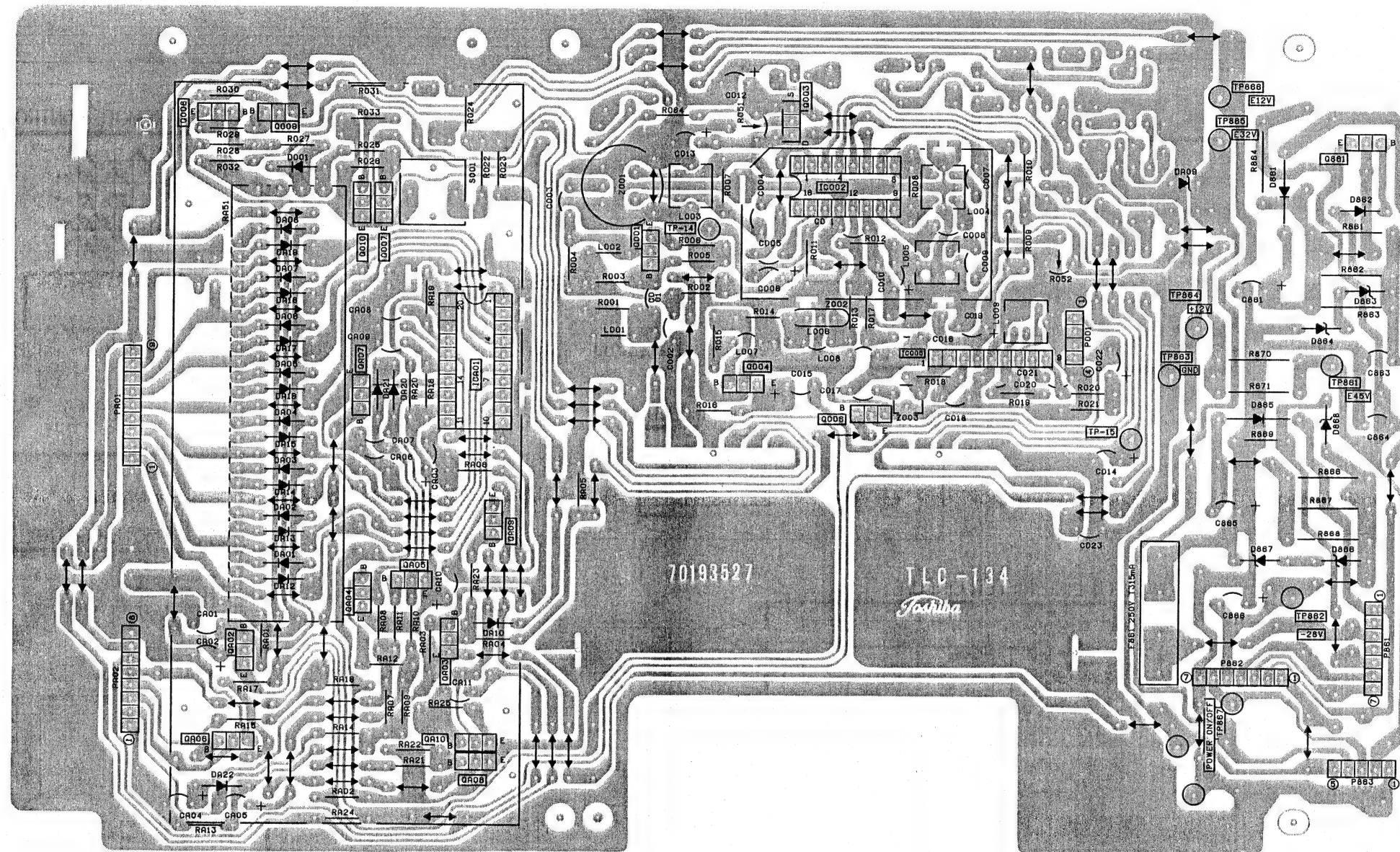




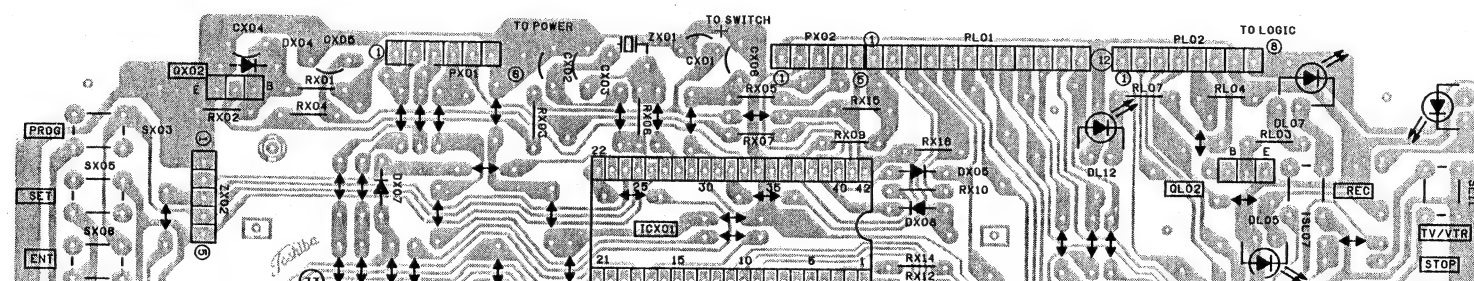




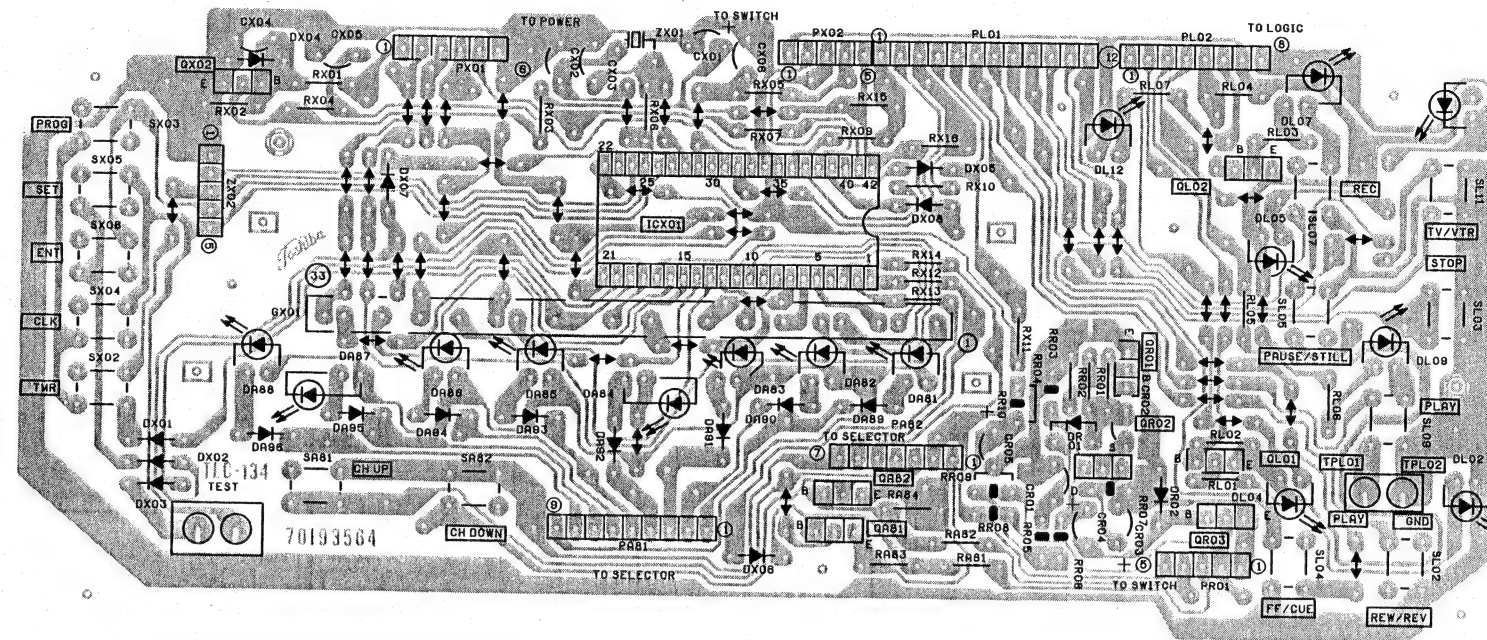
## U001 PIF • SELECTOR & POWER 2



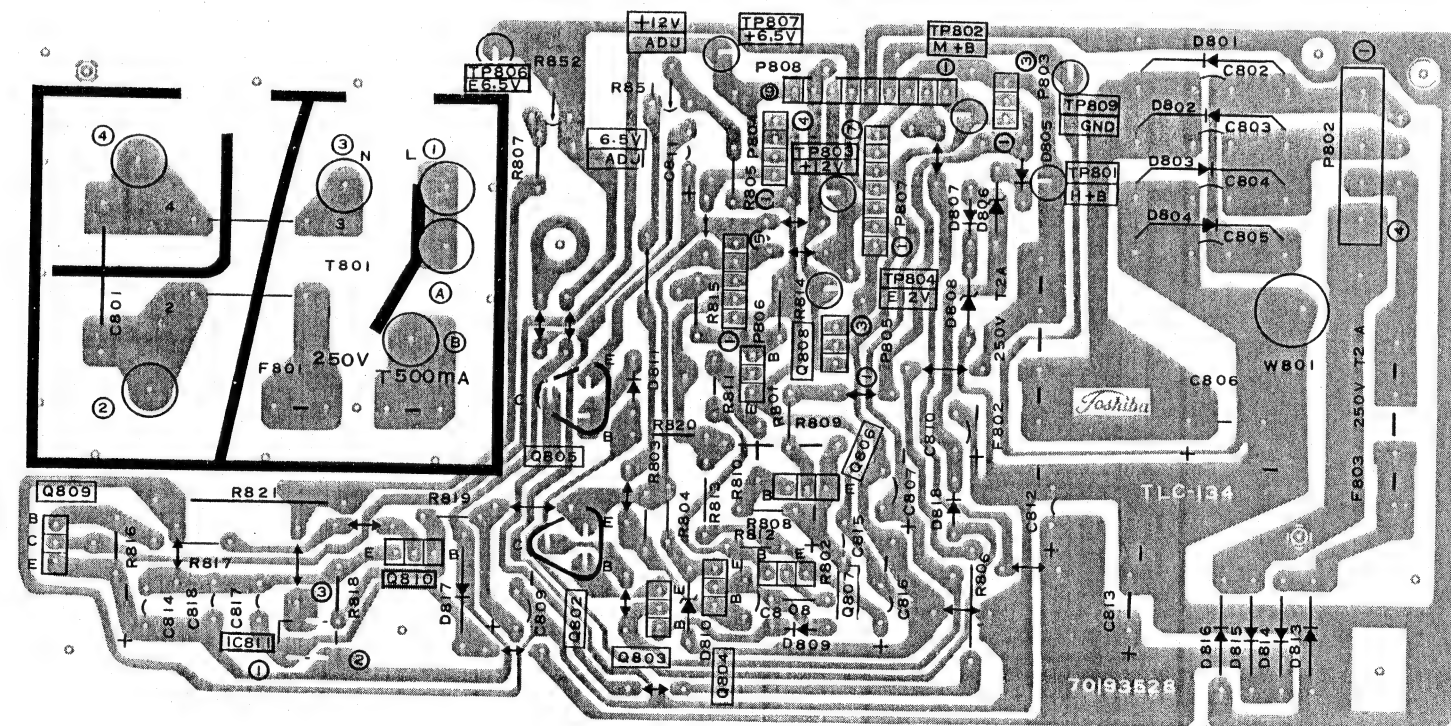
## UX01 TIMER & LOGIC CONTROL



## UX01 TIMER & LOGIC CONTROL



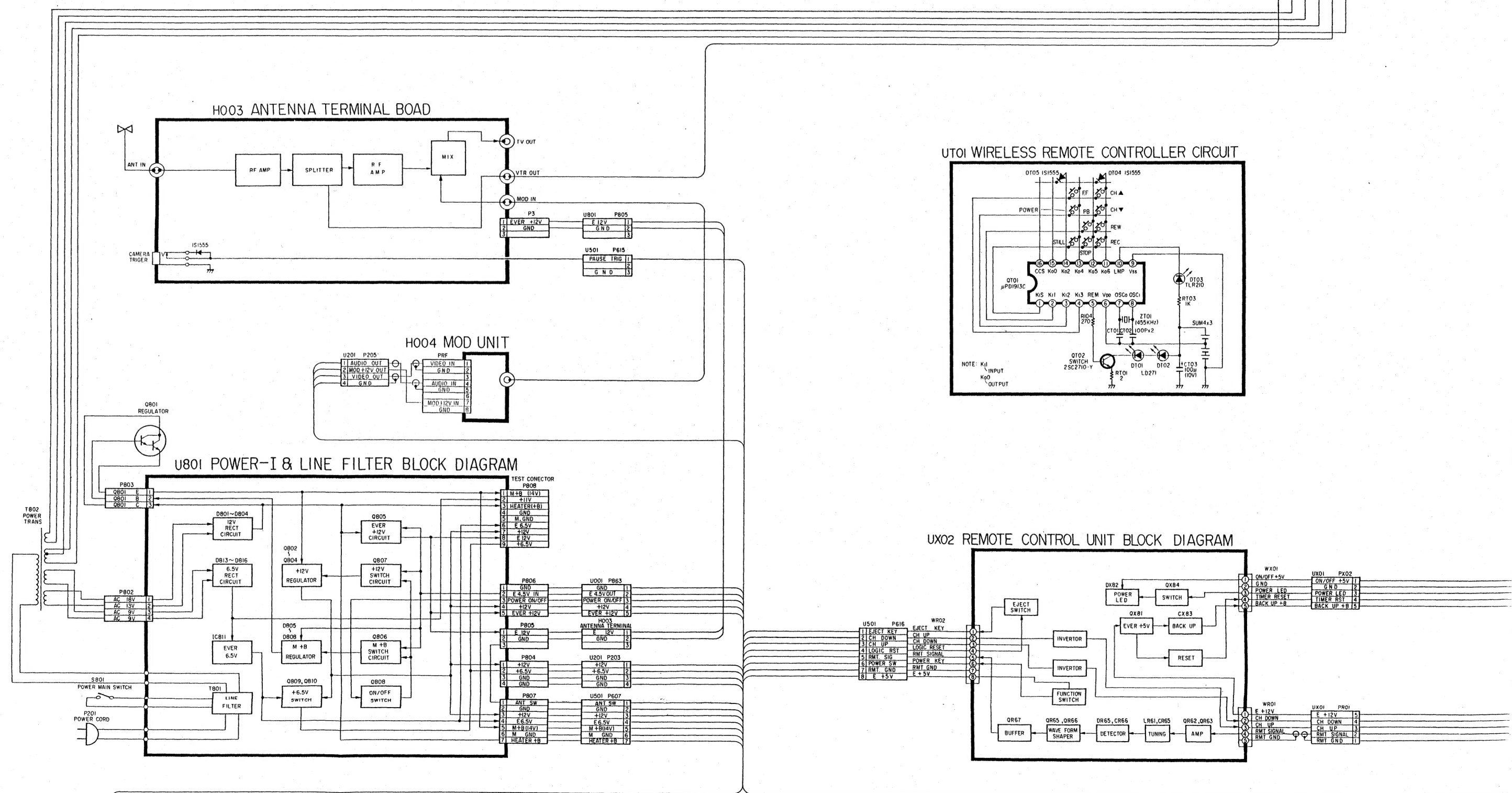
## U801 POWER 1



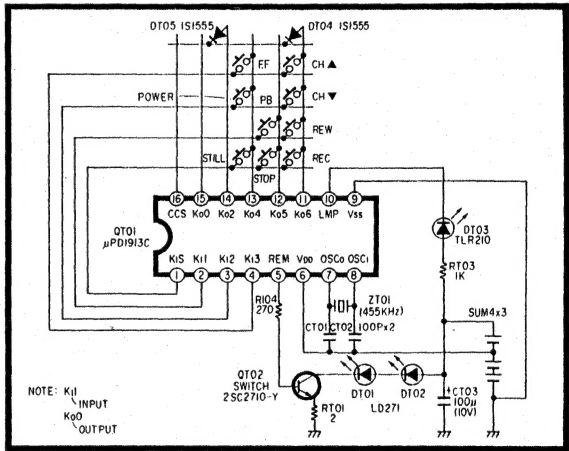


# TOSHIBA

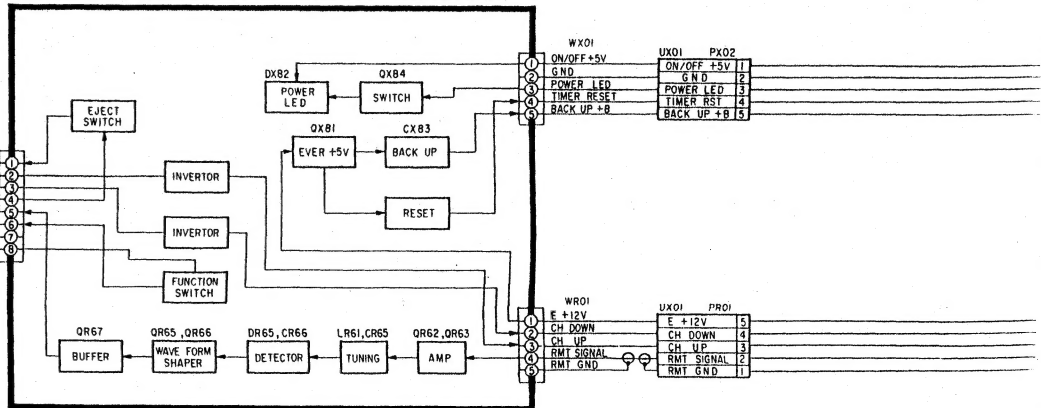
## BLOCK DIAGRAM OF V-33

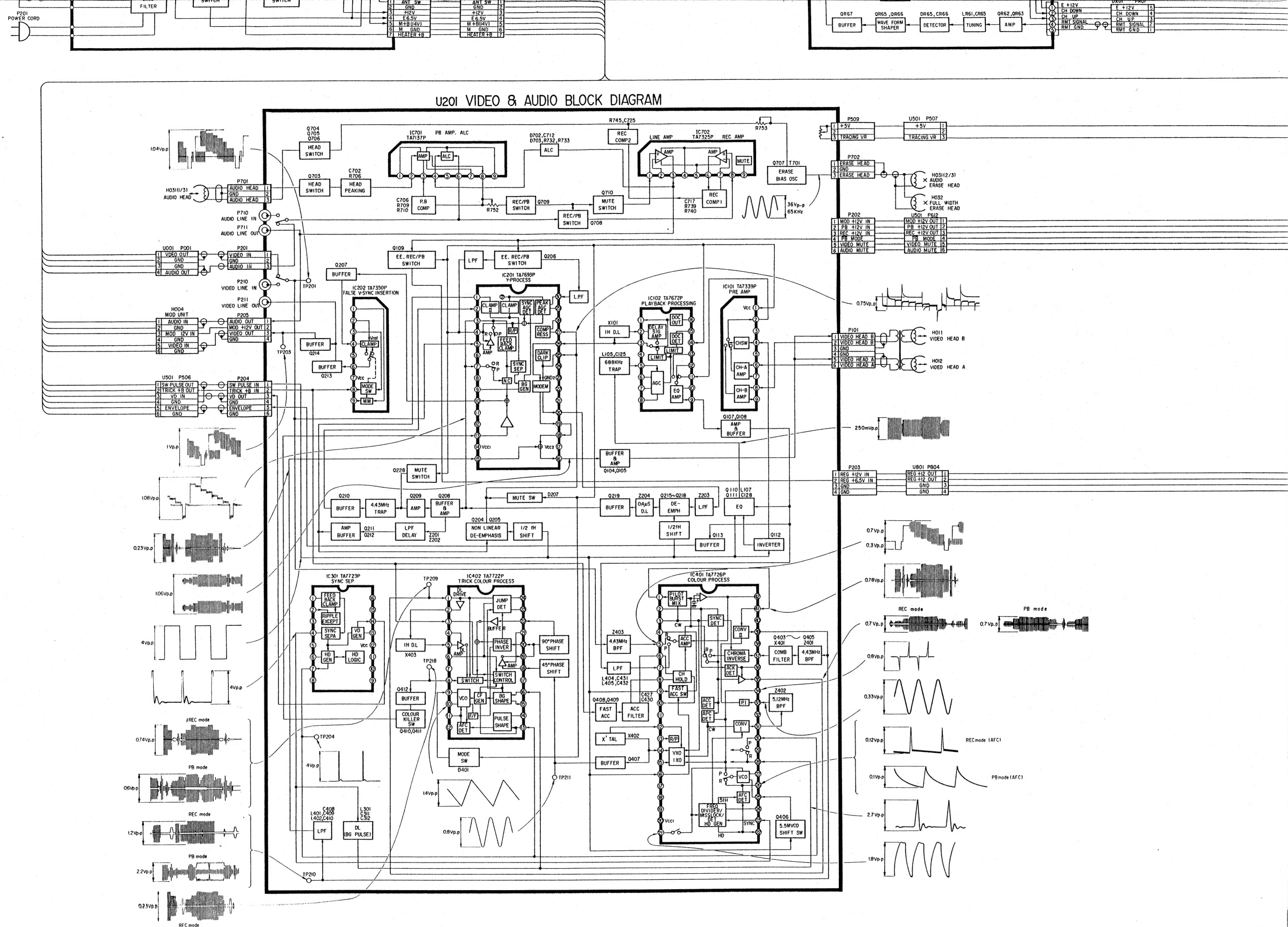


U001 WIRELESS REMOTE CONTROLLER CIRCUIT

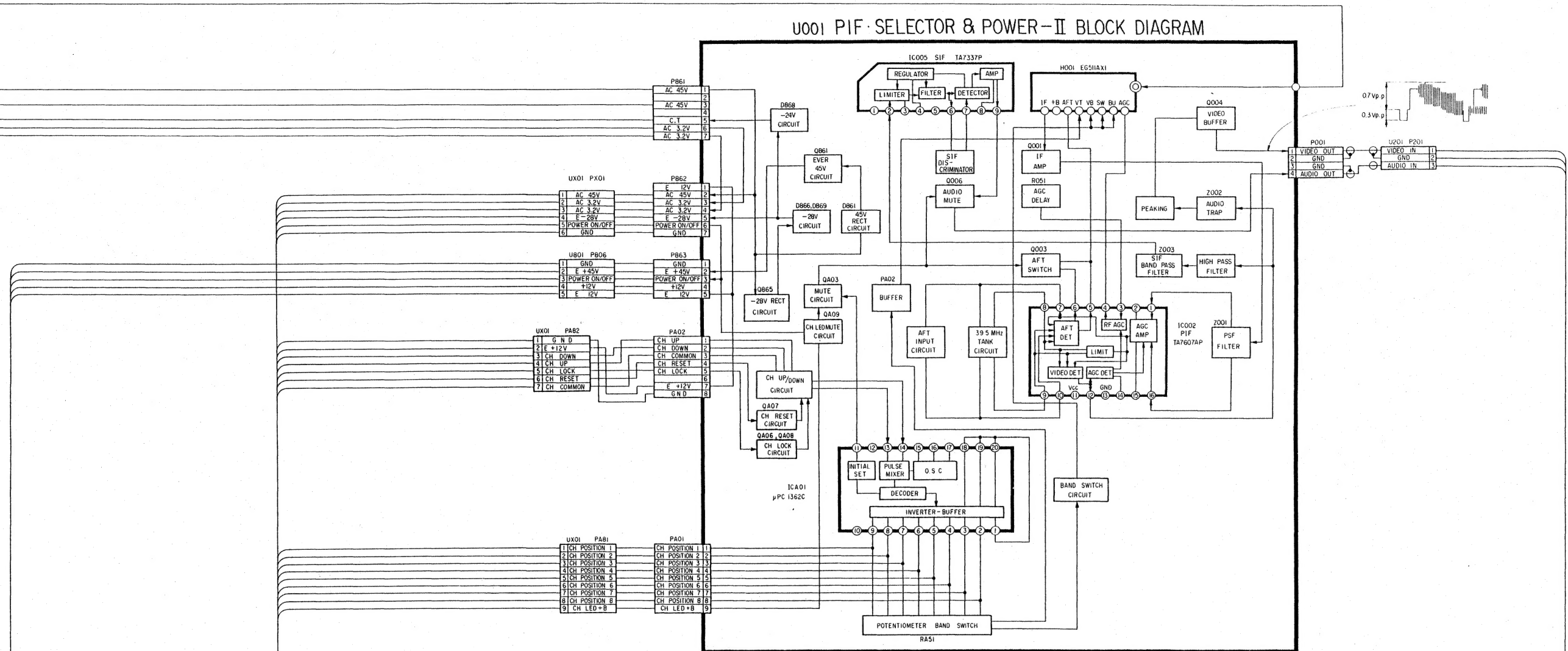


UX02 REMOTE CONTROL UNIT BLOCK DIAGRAM

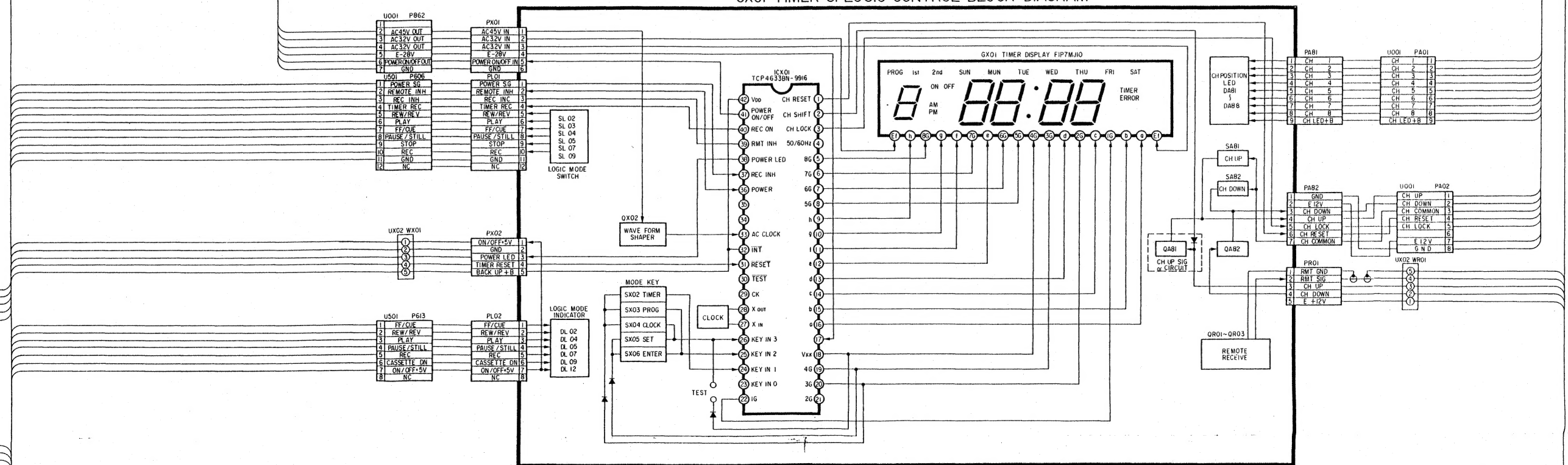




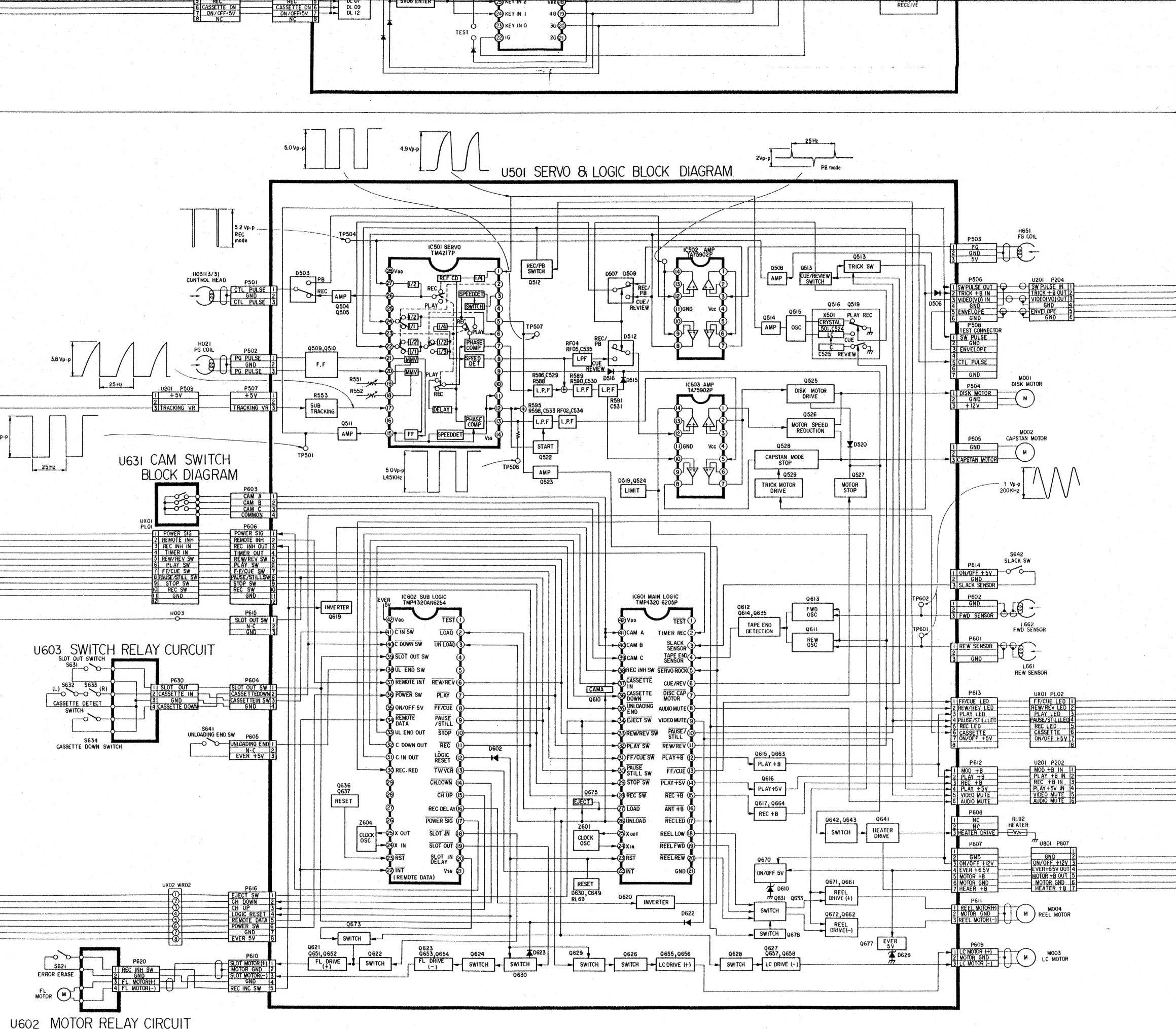
# U001 PIF-SELECTOR & POWER-II BLOCK DIAGRAM



# UX01 TIMER & LOGIC CONTROL BLOCK DIAGRAM







U602 MOTOR RELAY CIRCUIT